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ABSTRACT

Among the prescriptions for improving children's school readiness is a call for television to lead the way through the provision of ready-to-learn programing and services for the nation's preschoolers. No single element of a national ready-to-learn service will have a greater impact on its effectiveness than the programing it airs. Three approaches to delivering a national ready-to-learn television service from public broadcasting are explored, along with a fourth, fall-back option, as follows: (1) universal access, with at least one public station providing uninterrupted daily ready-to-learn broadcasting each day; (2) national cable feed, with an uninterrupted ready-to-learn service to cable systems throughout the country; (3) local hybrid, in which each local public television station would determine how best to configure and deliver ready-to-learn services; and (4) existing schedule, which would add additional programing to the current schedules. The first option is identified as offering the greatest benefit to the greatest number of children. Estimated costs associated with each aspect of the ready-to-learn service are discussed. Two figures illustrate the discussion. Appendix 1 lists specific readiness skills. Appendix 2 lists the project's academic advisors. (Contains 54 footnotes.) (SLD)

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Public Broadcasting: Ready to Teach

How Public Broadcasting Can Serve The Ready-to-Learn Needs Of America's Children

A Report to the 103rd Congress and the American People

Pursuant to P.L. 102-356

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CORPORATION FOR PUBLIC BROADCASTING

A Quarter Century of Quality Programming

Richard W. Carlson
President and Chief Executive Officer

February 5, 1993

The Honorable Walter J. Stewart
Secretary of the Senate
S-208 The Capitol
Washington, D.C. 20510-7100

Dear Mr. Stewart:

In accordance with Section 17(b) of the Public Telecommunications Act of 1992, Pub. L. 102-356, 106 Stat. 955, I am pleased to transmit to you the Corporation for Public Broadcasting's report on the most effective way to establish and implement a public television ready-to-learn service.

Sincerely,

Attachment

901 F Street, NW
Washington, DC 20004-2037
(202) 879-9800
FAX: (202) 783-1020

CORPORATION FOR PUBLIC BROADCASTING

A Quarter Century of Quality Programming

Richard W. Carlson
President and Chief Executive Officer

February 5, 1993

The Honorable Donnald K. Anderson
Clerk of the House of Representatives
H-105 The Capitol
Washington, D.C. 20515-6601

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CORPORATION FOR PUBLIC BROADCASTING

Public Broadcasting: Ready to Teach

How Public Broadcasting Can Serve the Ready-to-Learn Needs of America's Children

A Report to the 103rd Congress and the American People

Pursuant to Pub. L. 102-356

February 5, 1993

FOREWORD

In 1992, Congress amended the Public Telecommunications Act of 1992, which authorizes the Corporation for Public Broadcasting (CPB), to request a feasibility report on establishing and implementing a ready-to-learn channel to serve the needs of preschool children.

The amendment specifically requires that:

> "... the Corporation for Public Broadcasting shall report to the Congress as to the most effective way to establish and implement a ready-to-learn public television channel. Such a report shall include, among other things,
>
> a) the costs of establishing and implementing a ready-to-learn channel;
>
> b) the special considerations of using television as a learning tool for very young children;
>
> c) the technology, and availability thereof, needed to establish and implement such a channel;
>
> d) the best means of providing financing for the establishment and implementation of a ready-to-learn channel."

This report is the Corporation's response. It has been prepared with the assistance and support of a number of distinguished advisors. Foremost among them are Drs. Jerome and Dorothy Singer and their research team at Yale University's Family Television Research and Consultation Center; special thanks are due to them.

In addition, a number of academic advisors reviewed the information regarding the educational value of television and the contributions it can make to improving children's readiness to learn. The Corporation is grateful for their willingness to lend their time, their expertise, and their valued advice. Their names are listed in the second Appendix to this report.

The process of developing and refining the implementation strategies for a national ready-to-learn service was guided by a working group that included representatives from throughout the public television system, including producers and stations. The Corporation thanks this group for their commitment, their conscientious efforts, and their careful thought.

Finally, recognition is due to the Boston Consulting Group, a world-wide consultant in corporate strategy, which conducted much of the research and helped guide CPB and its working group in its consideration of implementation strategies that would best serve the public, and has underwritten much of the cost.

CONTENTS

FOREWORD

CONTENTS

EXECUTIVE SUMMARY 1

- A PROVEN EDUCATOR WITH A BROAD REACH 2
- THE VITAL IMPORTANCE OF PROGRAMMING 2
- DELIVERING A READY-TO-LEARN SERVICE TO THE NATION 3
- COSTS AND REVENUES 4

SCHOOL READINESS: A NATIONAL PRIORITY 7

- THE SCOPE OF THE READY-TO-LEARN PROBLEM 7
- DEFINING READY-TO-LEARN NEEDS 9
- TEACHERS EVALUATE READY-TO-LEARN SKILLS 12
- TOWARD A SOLUTION 13

TELEVISION AND SCHOOL READINESS 17

- TELEVISION AS AN EDUCATIONAL MEDIUM 18
- POSITIVE USES OF TELEVISION 22

HOW TELEVISION CAN HELP 25

- OTHER CONTRIBUTIONS TO READY-TO-LEARN 28
- CURRENT PROGRAMS FOR PRESCHOOL CHILDREN 29
- REACHING BEYOND THE TELEVISION 31

TOWARD A NATIONAL READY-TO-LEARN SERVICE 35

- GOALS OF A SERVICE FROM PUBLIC BROADCASTING 35
- THE CURRENT ENVIRONMENT OF PRESCHOOL PROGRAMMING 38

PROGRAMMING FOR A READY-TO-LEARN SERVICE 41

- A NEW VISION FOR TELEVISION 41
- COSTS 44
- OUTREACH AND PROMOTION EFFORTS AND COSTS 46
- SUMMARY 47

THE AUDIENCE AND HOW TO REACH THEM 49
WHERE ARE THE CHILDREN? 49
OPTIONS FOR DELIVERING A READY-TO-LEARN SERVICE 51
DELIVERING A READY-TO-LEARN SERVICE 55
A READY-TO-LEARN SERVICE WITH UNIVERSAL ACCESS 55
NATIONAL CABLE FEED 61
LOCAL HYBRID 65
USING THE EXISTING SCHEDULE 68
OVERALL COSTS 71
UNIVERSAL ACCESS 72
NATIONAL CABLE FEED 73
LOCAL HYBRID 74
EXISTING SERVICES 75
REVENUE CONSIDERATIONS 77
INCREMENTAL INCOME FROM CURRENT SOURCES 77
FEE REVENUES 79
ANCILLARY REVENUES 80
CONCLUSION: NEXT STEPS 83
APPENDIX 1: SPECIFIC READINESS SKILLS 85
APPENDIX 2: ADVISORS 90
ACADEMIC ADVISORS 90
WORKING GROUP 90
FOOTNOTES 91

EXECUTIVE SUMMARY

"By the year 2000, all children in America will start school ready to learn."

So states the first objective of the six national educational goals set forth by the President and the nation's governors in 1989. Yet America's children are arriving for their first day of school increasingly unprepared to succeed, at a time in the country's history when a sound education is more necessary than ever for personal satisfaction and success, and for the nation's health as well.

This alarming situation has been thoroughly documented in a report issued by the Carnegie Foundation for the Advancement of Teaching, a report that also lays out a solid and comprehensive blueprint for addressing the issues of readiness to learn.

Among the most prominent prescriptions for improving children's school readiness is a call for television to lead the way, through the provision of ready-to-learn programming and services for the nation's preschoolers.

It is a call that public broadcasters are uniquely well suited to answer. For a quarter of a century, public broadcasters have demonstrated their commitment to serving the nation's children, with distinguished series such as *Sesame Street* and *Mister Rogers' Neighborhood* that have stood as the very definition of quality and excellence in children's television. With this experience as a foundation, public broadcasters recognize that more can be done, and stand ready to help achieve it.

An effective national ready-to-learn service must begin with offering excellent programming. But it also will have to be widely available to the nation's children, so that they can benefit from it whether at home with a parent, at a neighbor's or relative's home, or at a preschool or day care facility. The service will have to be well promoted, so that parents and care givers know of its availability and its value. Finally, such a service will need a strong community-based infrastructure to involve parents and caregivers, and to provide additional educational materials to extend televised learning.

On all counts, public broadcasting is ready. Public broadcasting offers virtually universal reach to the nation's households, and has established a strong tradition of community based service.

For all of these reasons -- its demonstrated commitment to America's children, its national technological infrastructure, its experience with providing community-based services -- public broadcasting offers significant advantages for a national ready-to-learn television service.

A Proven Educator With A Broad Reach

From a pedagogical point of view, television is an excellent tool to improve school readiness. Extensive research into the effects of television has demonstrated repeatedly that when programs are carefully designed and produced to achieve educational and developmental goals, children do show gains as a result of viewing. These results have been demonstrated for improvements in cognitive skills and abilities (from letter and number recognition to more complex problem-solving) and for positive development of behavioral values (such as task perseverance and sympathy).

In addition, television can successfully reach the great majority of preschool children in America, wherever they may be: at home, at a friend's or neighbor's home, in home-based day care, or in a more formal day care or preschool setting. If a ready-to-learn service were to use broadcast television, in fact, it would be accessible to virtually *every* child in America.

The Vital Importance of Programming

No single element of a national ready-to-learn service will have a greater influence on its effectiveness than the programming it airs. Public broadcasting has amassed a significant body of preschool children's programming of demonstrated effectiveness; yet more could be done to develop a comprehensive national service to improve the school readiness of American children. For such a service, public broadcasters would want to ensure that the service met the broad learning needs of children.

Further, public broadcasters envision a comprehensive service that emphasizes and encourages active use of television, with programs that encourage both children and parents to create a more complete learning context. Programming for a comprehensive national ready-to-learn service

should actively engage the interest of children; stimulate their learning and development; extend their interest through related activities; encourage parents and caregivers to be equally interested and involved; educate parents and caregivers to the developmental needs of children; and provide caregivers with greater opportunities for professional development.

To achieve these goals, television programming would be accompanied by development and distribution of an extensive array of workbooks, activity books and magazines created for children, and parent and caregiver guides created for adults, all designed to encourage and channel further activities on the part of children.

Such ambitious and effective educational programming and materials cannot be created inexpensively; it is worth noting that even a relatively low level of service could require new program production at well over double the current rate of production of children's programming, at an expected first-year cost of $64 million.

However, the Corporation for Public Broadcasting believes that the rewards of a nation of better-prepared children are well worth the investment.

DELIVERING A READY-TO-LEARN SERVICE TO THE NATION

Three approaches to delivering a national ready-to-learn television service from public broadcasting are explored in detail in this report, along with a fourth, fall-back option:

Under the *universal access* proposal, at least one public television station in every city would provide an uninterrupted ten-to-twelve hour ready-to-learn broadcast service every weekday.

Under the *national cable feed* proposal, public broadcasters would supply cable systems throughout the country with an uninterrupted ready-to-learn service, operating twenty-four hours a day.

Under the *local hybrid* proposal, each local public television station would determine how best to configure and deliver a ready-to-learn service to the communities it serves.

Under the *existing schedule* proposal, the fall-back option, public broadcasters would add additional ready-to-learn programming into the current schedule of preschool programming, possibly accompanied by enhanced outreach efforts.

While each of these options has its merits, and none is without challenges, the Corporation believes that the first option, to provide universal access through an uninterrupted daytime service using public television stations' normal broadcast channels, would offer the greatest benefit to the greatest number of children.

The availability (or reach) of programming offered through this option is virtually universal: it could be seen in almost all the nation's households, day care centers, and preschools, or just about anywhere children could be. In contrast, the other distribution options reach sharply more limited numbers of households.

One of the reasons for public broadcasting's very existence in this country is to provide high quality noncommercial programming to all of its citizens; thus, the Corporation and most public broadcasters believe the goal of reaching all the nation's children with a ready-to-learn service is of primary importance.

COSTS AND REVENUES

Estimated costs associated with each of the main elements of the ready-to-learn service -- programming, including outreach and promotion; and distribution -- are discussed in the appropriate chapters of this report. These costs vary considerably. Programming costs are dependent on the level of new program production, which is in turn dependent on the extent of the service provided, at least in part. Costs for distribution vary according to the capital costs involved in their implementation.

For convenience in considering all the options, however, costs have been consolidated for the possible configurations of a ready-to-learn service. In general, they are highest for the *local hybrid* option, because of the capital expenditures required for stations to implement local service delivery; and lowest for the *universal access* and *existing schedule* options, since both involve relatively few capital expenditures.

For some distribution options, important and valuable services to other audiences would have to be displaced, and there are costs associated with minimizing the impact of an enhanced ready-to-learn service on these other services currently being delivered to the public.

Potential revenues for public broadcasting (excluding tax-based sources) that might result from the launch of a national ready-to-learn service are also explored. Incremental increases from current funding sources could, in the most optimistic projections, yield as much as $60 million annually. In

addition, if the service is offered via cable, fees from cable systems could produce revenues as well.

The net financial impact of all options for an enhanced ready-to-learn service is one of significant cost. But the opportunity plainly exists for Congress to make a dramatic contribution by investing what would be required to develop a comprehensive ready-to-learn service. Just as Congress recognized in 1967 the value of federal support as an impetus for bringing high quality noncommercial programs to the entire nation, it could authorize funding for the Corporation for Public Broadcasting to enable public broadcasters to bring a ready-to-learn service to the homes of all children in America.

The report concludes with a look toward next steps. The Corporation is preparing to explore in more detail some of the challenges associated with implementation of a nationwide ready-to-learn service. Public broadcasting stands ready to assist Congress in further exploring the issues and options raised in this report.

SCHOOL READINESS: A NATIONAL PRIORITY

America faces many issues critical to its future, but none more so than the education of its next generation of citizens and leaders. Education is the foundation of everything that is important to our society: our democratic form of government; our productive economy, particularly in a global environment of intensifying economic competition; and the cultural and intellectual life that has enriched and distinguished our nation.

Culminating a decade of growing awareness and interest in improving education on the part of government, civic and corporate leaders, six goals for American education to achieve by the year 2000 were jointly adopted by the President and the governors of all 50 states.

The first and most fundamental of these goals states that all children in America will start school ready to learn by the year 2000 -- fundamental because it recognizes that if children do not start their schooling with a good beginning and a strong foundation, both they and the schools they attend will be struggling to catch up rather than to move ahead.

The importance of this goal was further underscored in a major report, written by Ernest L. Boyer and published by the Carnegie Foundation for the Advancement of Teaching, titled *Ready to Learn: A Mandate for the Nation.* This report examined the current deterioration in the state of school readiness among American children, considered the causes of the problem, and listed seven steps that the nation could take collectively to improve the school readiness of its children.

THE SCOPE OF THE READY-TO-LEARN PROBLEM

In preparing its report, the Carnegie Foundation reviewed the body of research into school readiness, and in addition conducted a national survey of more than 7,000 kindergarten teachers. The results suggest a significant

number of children are entering the school system "educationally, socially, and emotionally not well prepared."[1]

In fact, according to the teachers questioned, more than one third (35 percent) of the children entering kindergarten -- nearly one and a half million American children every year -- are not "fully ready to participate successfully in formal education."[2]

An even more ominous result of the Foundation's survey is that 42 percent of teachers said that the readiness of their children has worsened over the previous five years.

Researchers cite many factors that contribute to these disturbing results, but agree that the two most prominent are the dramatic transformation of the "typical" American family over the past 30 years, and the increasing number of children who are affected by poverty.

A Different American Family

Once, the traditional family structure included grandparents, aunts, uncles, and other close family members, who lived nearby and were a natural and constant part of family life. This extended family was further extended by neighbors who knew each other and watched out for each other's children; by shopkeepers who knew and recognized the children in their neighborhoods; by pastors, priests, rabbis, and other spiritual counselors who were close at hand in times of trouble.

This informally extended family structure has diminished over the years, however, while dramatic social, demographic, and economic changes have led to an almost unprecedented transformation of the nuclear American family as well. The result is a radical change in the experience of growing up.

Approximately 70 percent of the mothers of all school-age children are now in the labor force, for example; about 60 percent of the mothers of preschoolers and more than half of the mothers of infants under one year old work outside the home. In sum, almost 11 million children under six years of age -- including 1.7 million under one year of age -- have mothers in the paid labor force.

In addition, many more children live in one-parent households, a change driven in large part by the increase in the rate of divorce and the increased proportion of out-of-wedlock births. Today, approximately one in five children live in one-parent households, usually headed by a single mother; in 1960, just one in twelve children lived in a one-parent household. The overwhelming majority of single parents -- almost 90 percent -- work outside the home.

As a result of these trends, parents simply have less time to spend with their children, and fewer informal, familial resources to call on to fill the gap.

The Impact of Poverty

One out of every five American children lives in a family with an income below the federal poverty level; many of these families have incomes that are less than half of the federal poverty level.

In 1987, according the U.S. Bureau of the Census, 40 percent of all the poor people in the country -- 13 million -- were children under the age of 18. Fifteen percent of those living in poverty, or five million, were children under the age of six, while another 2.7 million children lived in near-poverty.

Further, the proportion of children living in poverty has increased during the last 20 years. Between 1968 and 1987, while the absolute number of children under six remained relatively stable, the number of children under six classified as poor increased by 35 percent.

Conditions of poverty rob many of these children of their very childhood, threatening their physical health and exposing them to levels of stress, violence, and neglect that often typify the nation's poorest neighborhoods.

In addition, the adult heads of families living in poverty are more likely to have a low level of educational attainment than the general population, and evidence suggests that the educational success of children is related to the educational attainment of their parents. Thus, the children of these impoverished families are more likely to be unready for school, and to remain at educational risk.

These issues -- the fractionization of typical family structures, resulting in children spending less time with their parents; and the influence of poverty, further limiting the resources available for children's care -- are generally considered the most influential in reducing school readiness.

DEFINING READY-TO-LEARN NEEDS

In preparing this report, the Corporation for Public Broadcasting consulted with a broad variety of experts in child development to ascertain the current state of understanding of exactly what constitutes school readiness needs for children. A list of specific examples of skills and abilities representative of readiness to learn is included in this report as Appendix A; a consensus of general developmental guidelines is summarized below.

General Developmental Guidelines

Most experts in child development agree that school readiness skills can be grouped into several general categories of development. One such categorization, developed by the Technical Planning Subgroup on School Readiness for the National Educational Goals Panel in support of that Panel's call for universal school readiness by the year 2000, identifies five such categories which, in the subgroup's judgment, describe the whole child.[3]

1. Physical Well-Being and Motor Development

A strong body of research links both maternal (prenatal) and child health to performance in school. Conditions such as very low birthweight and poor nutrition may have long-term effects on a child's readiness for school. In addition, specialists in early childhood education emphasize the importance of strong motor development, including both gross motor skills, such as those demonstrated on the playground, and fine motor skills, such as the ability to control a crayon or pencil.

Most of the components of this dimension of readiness call for direct physical practice and patient encouragement by parents and caregivers. Parental awareness of general health issues, both before and after birth, is another vital ingredient in improving physical health.

2. Social and Emotional Development

This element of school readiness serves as the foundation for relationships that give meaning to children's school experiences. It involves a sense of personal well-being that derives from stable, predictable interactions, including those that enable children to participate in classroom activities that are positive for themselves, their classmates, and their teachers. Emotional control helps children weather small failures and continue their efforts at mastering difficult skills. Critical ingredients include emotional support and secure relations which can engender such characteristics as self-confidence and social skills (e.g., taking turns; following directions; contributing to a creative and productive classroom climate; and interacting positively with children who may represent a variety of different social, economic, ethnic, and cultural backgrounds).

3. Approaches to Learning

This area of readiness relates not to specific skills or abilities, but instead to the general way a child approaches new material, new settings, new interests, and new information. Children can be successful in school in many different ways, and families and teachers must understand the various ways that children can be engaged. Improving this dimension of school readiness is not a matter of training a child in any particular area, but of fostering curiosity

about school and about learning, and encouraging such attributes as creative thinking, independence, cooperativeness, and persistence.

4. Language Skills and Vocabulary Flexibility and Fluency

Experts consider richness in linguistic ability to be a critical factor in school readiness, affecting as it does a child's capacity to understand the teacher's and other children's use of words; to clearly represent his or her own thoughts, feelings, and experiences; and to establish a readiness for and orientation toward reading. Communicating effectively with other children and adults and having emergent literacy experiences with the many different forms of language are fundamental to this dimension of readiness.

5. Cognition and General Knowledge

Cognition and general knowledge represent the accumulation and reorganization of children's experiences, and are developed by participating in a rich and varied learning setting, and enhanced by skilled and appropriate adult intervention. These experiences are the building blocks that children use to construct their knowledge of patterns and relationships, cause and effect, and methods and approaches for solving problems in everyday life.

In sum, readiness to learn requires reasonable physical health and motor development, the accumulation of emotional balance and social skills, a curious interest in learning, reasonably strong experiences with and fluency in language, and a grounding in basic cognitive experiences from which to build a more complex understanding.

In *Ready to Learn: A Mandate for the Nation*, the Carnegie Foundation categorizes ready-to-learn skills slightly differently, using six different groupings that nevertheless closely mirror the areas described above. The classification employed by the Foundation includes:

Physical well-being;

Social confidence;

Emotional maturity;

Language richness;

General knowledge; and

Moral awareness.

It is apparent that while the labels differ slightly, the kinds of development included in both classifications are essentially the same.

TEACHERS EVALUATE READY-TO-LEARN SKILLS

When the Carnegie Foundation surveyed kindergarten teachers for its report, it asked them to evaluate the seriousness of problems in each of these six developmental areas for their students who entered school not ready to learn.

The results are hardly encouraging, but they provide an extremely useful benchmark of the specific dimensions of the school readiness problem throughout the nation, and thus provide a point of departure for developing and prioritizing strategies to attack this difficult issue.

Percent of Teachers Reporting "Serious" Problems Of Various Types Among Students Who Entered School Not Ready to Learn:[4]

Language richness	51 percent
Emotional maturity	43 percent
General knowledge	38 percent
Social confidence	31 percent
Moral awareness	21 percent
Physical well-being	6 percent

It should be noted that the above percentages include only those teachers reporting *serious* problems. When the data are expanded to include teachers who report moderate to serious problems, the enormous scope of the issue becomes much clearer.

Percent of Teachers Reporting "Moderate" to "Serious" Problems Of Various Types Among Students Who Entered School Not Ready to Learn:[5]

Language richness	88 percent
Emotional maturity	86 percent
General knowledge	83 percent
Social confidence	80 percent
Moral awareness	60 percent
Physical well-being	33 percent

TOWARD A SOLUTION

In looking toward solutions that can improve the school readiness of American children, the Carnegie report looks first to parents, every child's first and most important teachers. The report notes that "no outside program -- no surrogate or substitute arrangement, however well planned or well intentioned -- can replace a supportive family that gives the child human bonding and a rich environment for learning."[6]

The report goes on to caution, however, that parents have never borne the full load of rearing their children; and that given the social trends discussed above, they cannot now be expected to do so either. Instead, the report advocates a balanced approach, beginning at home with parents, and extending throughout virtually every aspect of society: to neighborhoods, to the workplace, to state capitals, and to the federal government.

The Carnegie report offers a seven-step strategy for a comprehensive campaign on behalf of America's children. In very brief summary, the strategy includes:[7]

A Healthy Start

Noting that "good health and good schooling are inextricably interlocked, and every child, to be ready to learn, must have a healthy birth, be well nourished, and well protected," the Carnegie report advocates improved health and nutrition services for all mothers and preschool children, particularly in underserved communities; integration of federal, state, and local child health programs for improved service delivery; and universal adoption of a health education program in all schools, with study units in every grade.

Empowered Parents

To achieve the stated goal of giving every child "a language-rich environment in which parents speak frequently to their children, listen carefully to their responses, answer questions, and read aloud to them every day," the Carnegie report proposes the establishment of a comprehensive parent education program in every state, with access assured for every parent of a preschool age child. The report also recommends wide dissemination of a national Parent Education Guide; preparation of a Ready-to-Learn Library Series; and organization of preschool parent-teacher groups for every elementary school.

Quality Preschool

Recognizing that many families must turn to care outside the home for their preschool children, the Carnegie report addresses issues of access to child care, and of professional standards for caregivers. The Foundation urges that Head Start be converted to an entitlement program with full funding, and that optional preschool programs be established in all school districts; encourages every state to include preschool services within its governor's office; and recommends that a uniform set of standards for child care be adopted by all 50 states as minimal licensing standards by the year 2000.

A Responsive Workplace

With so many mothers of preschoolers now in the paid labor force (approximately 60 percent), and more fathers sharing in the job of raising and nurturing children, the Foundation recognized the need for "workplace policies that are family-friendly, that supply child care services, and give parents time to be with their young children." The report recommends that employers make at least twelve weeks of unpaid leave available to parents of newborn or adopted children, offer flexible scheduling and job sharing, and provide at least two parenting days off each year; and suggests that employers help their workers gain access to child care.

Neighborhoods for Learning

To promote both physical development and the sense of security that can come with a neighborhood, the Carnegie report calls for safe and friendly neighborhoods with "spaces and places for growth and exploration," and encourages every community to develop a network of outdoor and indoor parks. School Readiness Programs at cultural facilities such as libraries, museums, and zoos are also advocated, along with Ready-to-Learn Centers in major shopping malls.

Connections Across the Generations

The Carnegie report cites the sense of security and continuity that derives from connections made between children and older members of their communities, and encourages schools, day care centers, and retirement communities to restructure their programs to bring young and old together.

Television as Teacher

The Carnegie report recognizes television as the second most influential teacher children have, after their parents, and calls for television programming that is both educational and enriching, that "can spark curiosity and open up distant worlds to children. Through its magic, youngsters can

travel to the moon or the bottom of the sea. They can visit medieval castles, take river trips, or explore imaginary lands."[8]

However, the Carnegie report concludes that television's "great potential as a teacher has, in the best sense, remained largely unfulfilled."[9] To redress this unfulfilled promise, the report makes a number of recommendations, including:[10]

> A ready-to-learn cable channel should be established to offer programming aimed exclusively at the educational needs and interests of preschool children.
>
> A ready-to-learn television guide should be prepared. This guide should list programs on both commercial and cable channels that have special educational value for young children.
>
> Twenty million dollars should be appropriated immediately to support the creation of educational programs for preschoolers. By 1995, funding should be increased to $100 million.
>
> A National Conference on Children's Television should be convened to bring together broadcast executives, corporate sponsors, educators, and children's advocates to design a decade-long school readiness television strategy.

It is beyond the scope of the CPB report to discuss these recommendations in detail. As directed by Congress, the report will focus on the first recommendation, but with a broader scope. The study will examine the feasibility of establishing and implementing a ready-to-learn *service* through public broadcasting to serve the needs of preschool children, and will include not only cable distribution, but a number of different options for delivering a national ready-to-learn service.

Summary

The Carnegie report concludes by noting that an effective national ready-to-learn campaign:

"must be everybody's business. It must engage people from many fields -- nurses and physicians, preschool teachers, employers, television producers, librarians, those who run neighborhood parks, senior citizens, national leaders, and, of course, parents.... Every institution in the community can and

should be actively brought into all aspects of the campaign. Only by extensively interweaving these cross-community threads will the net of support for children be sufficiently strong to achieve the nation's first educational goal.... "

"At the historic education summit in Charlottesville, Virginia, the President declared: 'Let no child in America be forgotten or forsaken.'[11] This is, when all is said and done, what 'ready to learn' is all about."[12]

TELEVISION AND SCHOOL READINESS

The number of hours children spend with television from their earliest years is well documented, yet it is always striking. A six-month-old child typically watches television for an hour and a half a day; five-year-old children typically watch two and a half hours a day. By the time an average American child begins kindergarten, he or she will have spent more than 4,000 hours in front of a television.[13]

It is no wonder, then, that the report of the Carnegie Foundation for the Advancement of Teaching identifies television as a child's "most persistent, and most influential teacher"[14] next to parents, and assigns to television a significant role in improving children's readiness to learn.

This chapter considers the role that television might play in the ready-to-learn effort. It begins with a review of research regarding television's suitability for educational use and its impact on children.

Over the years, a very large and quite detailed body of research into television and children has been developed. In the interests of brevity, however, this report merely summarizes the highlights of this research. The reader may also note that the majority of the programs sited in research about the educational value of television are current or former public television series, such as *Sesame Street*, *Mister Rogers' Neighborhood*, and *The Electric Company*, not because public broadcasters are trying to promote their programs and services, but because these are the only television series for preschoolers whose development has been driven by educational and developmental concerns.

After research findings are reviewed, the specific kinds of contributions that television could make to improving the ready-to-learn skills of the nation's children are considered, and a survey of educational television programs and services currently available for preschoolers is presented.

Newton Minow, former chairman of the Federal Communications Commission, said in a recent speech that "...all of television is education. The question is, what are we teaching, and what are we learning?"[15]

Indeed, there is broad agreement among researchers that television does have an impact on children, and that programs that are properly designed and executed can provide strongly positive educational and developmental experiences. Among the principal conclusions suggested by the review of literature on the subject conducted for this report are the following.

1. **Television viewing is an active experience that can have both positive and negative outcomes.**

That is, the medium itself is not inherently good or bad. The variables considered most important by researchers are the type and content of the programs viewed and the uses viewers make of those programs. The outcome of a television viewing experience is therefore a result of the *interaction* between the viewer and the medium.

2. **The context in which television is viewed is an important determinant in its effects.**

This observation is considered particularly true for young children, who are generally less familiar with the accepted conventions and artifices of television. The social context in which children watch television, and the influence, intervention, and commentary of adults and other viewers, have a significant impact on how children perceive television, and on what they retain after the set is turned off.

3. **The influence of television is gradual and cumulative.**

This model of cumulative influence is distinguished by the subtle and gradual incorporation of frequent and repeated messages. While this observation is intuitively obvious to anyone who has been regularly exposed to television advertising, it represents a type of influence that is particularly difficult to measure with current methods.

In sum, when considering television's potential for positive or negative impact on viewers, particularly young viewers, it is important to weigh the content and intention of the programming being watched; the expectations of the viewers, and, in the case of children, the guidance provided by parents, other adults, or older children who may be watching with them; and the persistence or continuity of the kind of programming being watched.

Evaluation of Concerns About Television

Over the years, some social critics have advanced arguments that television contributes to a variety of social ills. In the view of many researchers, the proper focus of these concerns is the content of television programming rather than television *per se;* this report does not question the assertion that television that is inappropriate for children can have a negative effect on them.

Unfortunately, fully 95 percent of the average child's television viewing involves programs that are *not* specifically produced for children.[16] It is the hope of public broadcasters and others concerned with children's welfare that the increased availability of appropriate children's programming through a national ready-to-learn service would increase children's viewing of appropriate television, but even that outcome cannot necessarily be expected to "counteract" the negative effects of inappropriate television viewing. In any case, some of the primary concerns raised by critics of television are discussed below, along with the highlights of available research that address their concerns.

Displacement

One concern advanced by critics of television is that it influences learning and social behavior by displacing other activities, such as reading, family interaction, and active play with peers. This hypothesis seems intuitively reasonable, since people do spend time on a daily basis watching television.

Benchmark studies conducted 30 years ago, when television was a relative newcomer, did show television displacing other entertainment media. However, there is no clear evidence that such displacement is occurring today. Further, for many children television viewing is itself an active experience, accompanied by physical activity (e.g., imitating actions), social interaction (e.g., talking with others present), and active mental processing. For these reasons, a number of researchers have suggested that the impact of displacement is not nearly as extreme or dramatic as the medium's most vociferous critics would suggest.

A reduction in reading skills, for example, is one influence that critics of television persistently point to as evidence of the negative impact of displacement, and there is a slight correlation between heavy viewing of *entertainment* programming and poor reading skills.[17]

On the other hand, there is strong evidence that some television viewing (between two and four hours for young children) is *positively* related to reading skills.[18] Specifically, children who watch television and become involved with books as a result, for example, through programs such as public television's *Reading Rainbow* and *Ghostwriter,* are more apt to become good readers[19] (since *Ghostwriter* premiered in fall 1992, more than

500,000 copies of related books have been sold, and its producers have received over 110,000 letters from viewers).

As a result of studies such as these, many researchers have concluded that television's alleged displacement of reading skills, if it exists at all, is more a product of the kinds of programs children view, and the uses they and their families make of television, than it is of television *per se*.

Effects on Cognitive Processing

Some critics have suggested that television affects the very structure of the thought process; that its generally fast pacing, for example, reduces children's attention spans and willingness to persevere in problem-solving.

An extensive review of the literature on television, conducted for the U.S. Department of Education,[20] concluded that there is little evidence to support the idea that television *as a medium* has any effects on such cognitive processes as attention, creativity or "attention span." In one experiment, for example, children watched an hour of either fast-paced or slower-paced television programming; no effects on subsequent attention or perseverance were noted by the experimenters.[21] The difficulty of designing long-term controlled experiments has generally precluded research on any such possible effects of large and continuing "doses" of viewing.

Some studies have suggested, however, that the *content* of programs viewed (rather than simply the fact that they were television programs) may have an effect on attention. One study of children who watched children's programming typical of commercial broadcasting did in fact show some reduced perseverance, or increased impulsiveness.[22]

On the other hand, a similar study of children who watched *Mister Rogers' Neighborhood*, the content of which has been carefully designed for positive educational value, showed *increased* persistence in everyday tasks in their preschool.[23]

Thus, research into television's allegedly negative effects on cognitive processing reaffirms the importance of the content of programs viewed by children: if the programming is designed with the developmental needs of children in mind, its effects can be quite positive.

Passivity

Another issue some critics have raised regarding television is that it encourages passive intellectual processing and a passive approach to life. Again, however, this perception may be strongly colored by the content of the majority of American television, and the context in which most adults view television.

Most adults treat television viewing as an occasion to relax; most programming in America is light entertainment, or at least undemanding entertainment. Thus, most American adults do exert less mental effort when they encounter television than when they encounter print.

Children, however, process television quite actively, focusing their attention on content that is comprehensible and interesting to them. They do "turn off" when the content is either dull or beyond their comprehension, which is the case for much of the general-audience programming on television. These programs use narrative conventions that most children do not understand (e.g., children often fail to draw inferences from implicit information), and assume an understanding of the adult world that young children do not possess.

As a result, children may indeed appear passive when watching television that is oriented toward adult viewers. However, when program content -- including both the information presented and the way it is presented -- is designed with the understanding and capabilities of children in mind, children can have a very active experience with television.

Achievement in School

Finally, some critics have argued that television reduces academic skill, and cite studies suggesting that children who watch a great deal of television do poorly in school.

However, there is very little evidence that television is a *cause* of reduced school achievement. In fact, the preponderance of evidence indicates the opposite: that television viewing is *not* a causative factor in school achievement.

There is, however, evidence that children who watch a moderate amount of television perform *better* in school than nonviewers, perhaps because they seek and process information from a variety of different sources. (These results are similar to the effects noted on reading skills, cited above.)

In sum, most of the negative concerns voiced about television, to the extent they are documented to exist at all, are more a product of the kinds of programming that children watch on television and the ways in which they use television, rather than a consequence of the medium of television *per se*.

POSITIVE USES OF TELEVISION

Positive impacts of television on children are well documented; however, just as possible negative effects of television are tied to program content and viewing context, positive outcomes are a consequence of program content that is specifically designed to serve children's educational needs. Positive outcomes are further enhanced by a viewing context that includes adult intervention.

Television has been used in instruction since the 1950s, but these early programs generally concentrated on formal instruction, and were created for use in a classroom setting.

The first consistent attempts to use broadcast television to teach academic skills and pro-social behavior to very young children began in the 1960s, in part as a response to widely perceived social concerns about poverty and educational disadvantage. The passage of the Public Broadcasting Act in 1967 further stimulated these efforts by authorizing federal support for the distribution of educational programming through public telecommunications.

Two educational programs designed for preschoolers, *Mister Rogers' Neighborhood* and *Sesame Street*, were among the earliest series offered to viewers by the Public Broadcasting Service. They have since been joined by a number of other preschool series, and because they are virtually the only television programs created primarily for educational and developmental value, they have been studied extensively by researchers for their effects on children.

Cognitive Skills

A number of studies have been conducted on the effects of *Sesame Street* on young viewers, and they have demonstrated that children do learn letters, numbers, and other cognitive skills from watching the programs.

In the program's early years, two studies were conducted. The first compared children who watched the series frequently with children who did not. The second employed a field experiment design in which children were randomly assigned to view or not to view the program at home. Parents of the experimental group were asked to encourage children to watch the program, and were also given any additional television equipment required to receive the broadcasts (e.g., UHF antennae or a cable connection). The control group received neither encouragement nor additional equipment. Both groups of children took a cognitive skills test before and after the viewing season, which lasted about six months.

Results for both studies were consistent: the children who watched *Sesame Street* regularly learned more than those who did not. These gains were measured for both boys and girls from a variety of social backgrounds.[24] A later study noted that the cognitive gains registered by children were higher where levels of adult intervention and mediation were higher.

More recently, a longitudinal study demonstrated an improvement in the vocabularies of children between the ages of three and five when they watched *Sesame Street* regularly.[25]

Gains in higher-order cognitive skills and understanding have also been demonstrated for older children viewing series such as *3-2-1 Contact* and *Square One TV*. A study of 192 fourth and fifth graders showed learning gains based on two weeks of viewing *3-2-1 Contact*, for example, more than 60 percent of the children were able to describe the principles of airplane flight.[26] A study of 48 fifth graders who saw 30 episodes of *Square One TV* demonstrated improved problem-solving and mathematical performances, with solutions that were more mathematically complete and sophisticated.[27]

Positive Behavior and Values

Television's positive effects upon children are not limited to the improvement of cognitive skills such as number and letter identification. A study of *Sesame Street* demonstrated that three- and four-year old children exposed to an entire season of the series learn to cooperate more than a control group that did not watch the program.[28]

Further, a number of studies of public television's other long-running series for preschoolers, *Mister Rogers' Neighborhood*, have demonstrated that children learn positive behaviors from viewing the program, among them nurturance and sympathy, task perseverance, empathy, and imaginativeness.[29]

These investigations have included field experiments in which one group of children was assigned to watch the series, and a second control group watched a different program (again emphasizing the importance of the content of the information as compared to the medium through which it is communicated). Children in the experimental groups demonstrated pro-social behaviors in natural settings, playing both with other children and with adults.[30]

In a subsequent study of economically disadvantaged children, the observed positive effects of the program were enhanced when, after viewing the program, the children were provided with relevant play materials for use in role-playing related to program themes.[31]

The results cited above again demonstrate the role of adult intervention in enhancing positive behavioral outcomes from television viewing. Research suggests this enhancement extends to cognitive goals as well, and that when

parents or other concerned adults watch with children, and help mediate and explain program content, improvements in cognitive goals are seen, especially in numbers, letter recognition, and vocabulary.

Summary

While some social critics have raised issues of concern about television and children, the weight of research supports the conclusion that television in and of itself is neither good nor bad.

Further, research conducted into the influences and effects of television programs that are specifically designed to achieve educational and developmental goals, such as enhancement of cognitive skills or the teaching of positive behavior, can achieve significant and measurable positive effects.

As demonstrated by this research, the Carnegie report is well justified in its recommendation that television should play an important role in improving the readiness to learn of our preschool children. The next question that might be asked is how television can best be used in this important effort.

How Television Can Help

It is clear from the positive results documented in the previous chapter that television can make important contributions to improving the readiness to learn of our nation's preschool age children. Programs that engage the active interest children bring to television, that encourage intellectual and emotional participation, and that offer opportunities for adult involvement and mediation can help children learn. It is also clear that to achieve these positive results, television programs must be carefully created and designed with educational and developmental goals as the driving priority.

To appreciate the scope of television's potential contributions, one might consider how the medium can assist children in achieving readiness in each of the principal dimensions of school readiness described above (pages 10 - 11). The corresponding dimensions of readiness used in the Foundation's report are included in (parentheses).

It should be noted that public broadcasters have, to varying degrees, produced and broadcast programs addressing nearly all of the goals discussed below. These examples of what television can do to help are not merely theoretical conjectures; they are derived from successful experience.

1. **Physical Well-Being and Motor Development** (physical well-being)

Most aspects of this dimension of readiness can only be developed through direct physical action and practice. Television can make contributions to children's physical health and development, through:

Programming for children demonstrating desirable health practices and motor skills,

Programming for children encouraging them to practice these skills in play-along activities, and

Programming targeted to parents and other caregivers regarding good health practices.

Television has been shown to be an effective medium for conveying information about health and nutrition practices for adults, particularly in

reaching disadvantaged viewers. One study documented the results of an information campaign about cardiovascular health that increased viewers' knowledge overall while decreasing the knowledge gap between individuals of higher and lower socioeconomic status.[32]

Similarly, televised public service announcements for children, advocating nutrition and healthy food consumption, appear to have had a positive effect, and nutritional messages in a commercial children's program (*Fat Albert and the Cosby Kids*) did have positive effects on children's food choices, particularly when these messages were not accompanied by advertisements for "junk" food.[33]

This suggests that programs or public service campaigns concerning the importance of prenatal health and nutrition, describing and demonstrating infant care and good health practices, and offering suggestions for developmentally sound physical activities are important elements in a ready-to-learn service. These programs would be aimed at parents and parents-to-be.

In addition, it is important for programs produced for children to include consistent messages about good health practices and to encourage physical activity. Given the evidence to support the gradual and cumulative effects of television, such an approach can be expected to have a positive effect on children's behavior.

2. Social and Emotional Development (emotional maturity, social confidence, moral awareness)

This report has reviewed research that demonstrates the effectiveness of carefully designed children's programming to help children learn pro-social behavior (see *Positive Behaviors and Values* above).

Clearly, television can be used, and is in fact now being used, as an effective source of social and emotional learning, demonstrating positive and negative forms of social behavior and helping children understand social roles.

Inasmuch as 86 percent of kindergarten teachers surveyed for the Carnegie Foundation report identify "emotional maturity" as a moderate to severe problem for children who are unready to learn, and 80 percent identify "social confidence" as a moderate to severe problem, it is clear that while public broadcasters have made significant contributions through programming that encourages positive emotional development, this dimension of school readiness should continue to receive attention.

3. Approaches to Learning

Children naturally vary from individual to individual in how they process information, but part of readiness to learn is the child's individual ability to use multiple "learning styles." Improving this dimension of school readiness

means encouraging curiosity about learning, nourishing creative thinking, and stimulating the imagination. It also suggests that parents and caregivers must accept and work effectively with different learning styles.

The message for advocates and creators of ready-to-learn programming would seem to be two-fold: first, that it is important to demonstrate the rewards of curiosity repeatedly and consistently; and second, that it is important to produce programs that demonstrate a variety of learning strategies, for example, through the inclusion of both audible and visual learning cues for children, and variations in the pacing and structure of segments.

In addition, programs informing parents and caregivers about learning styles, created in conjunction with those previously mentioned concerning health and nutrition, would be an important ingredient in a complete ready-to-learn service.

4. Language Skills and Vocabulary Flexibility and Fluency (language richness)

This is another area in which research has demonstrated clearly the effectiveness of properly designed television programs (see *Cognitive Skills* above). This is also the dimension of school readiness most frequently identified by kindergarten teachers as being a moderate to severe problem among students who are not ready to learn.

Together, these facts suggest that television programs promoting language skills should continue to be a central contributor to improving the readiness to learn of American children.

5. Cognition and General Knowledge (general knowledge)

Inasmuch as this dimension of readiness involves a child's developing experience with fundamental cognitive skills and approaches to understanding, such as pattern and relations, television programs can make contributions to the extent that they can help children experience such approaches, and in fact research has demonstrated *Sesame Street's* positive effects on the cognitive skills of children, particularly when interpreted and mediated by adults.

Television's demonstrated success in addressing this dimension of school readiness should, therefore, be continued and expanded, with special attention paid to involving parents and caregivers in sharing the experience of viewing programs with the children in their care.

Supplementary Materials

Finally, in light of the considerable evidence cited above that adult intervention has a significant impact on positive outcomes, some kind of information for caregivers should be made available, either as supplementary

print materials with the broadest possible distribution, or as additional, separate television programming.

This material would suggest how adults might interact with children before, during, and after television programs. In addition, since it has been shown that children who complete additional activities related to their television viewing can gain even greater improvements, supplementary caregiver materials might include suggestions for very specific activities as well.

OTHER CONTRIBUTIONS TO READY-TO-LEARN

In looking toward solutions to the nation's ready-to-learn problem, the Carnegie report looks first to parents. This report has already noted the contributions television might make to parental understanding of the importance of certain key dimensions of their children's readiness to learn.

Another group with a vitally important role to play in a national effort to improve students' school readiness is day care providers, and much of the programming produced to inform and educate parents could serve the same role with day care providers.

Television can go a step further with this important audience, however, by providing widely available opportunities for professional training and development. When used in conjunction with texts, study guides, and other more conventional teaching materials, television has demonstrated powerful effectiveness as a teaching medium for adult learners.

Television series could, therefore, be created to provide a broad spectrum of easily accessible and relatively inexpensive courses for the training and development of day care providers.

Finally, regular adult programming covering the dimensions of the ready-to-learn issue and its ramifications for our society could help to unite communities, and motivate and channel their energies into tackling it effectively.

Public television has demonstrated the effectiveness of this approach in a number of national efforts including *The Chemical People*, which galvanized action to address drug and alcohol addiction in communities across the nation; and *PLUS (Project Literacy U.S.)*, which has helped bring business, government, and volunteer organizations together to improve literacy teaching and learning.

CURRENT PROGRAMS FOR PRESCHOOL CHILDREN

Having identified the kinds of programming and related efforts that could best improve the school readiness of our nation's preschoolers, it may be helpful to examine briefly the programs and services that currently exist.

All the projects discussed here have been created by or for public television. That is because, as a practical matter, public television is the only broadcasting entity that has demonstrated a long, substantial, and continuing commitment to serving the educational and developmental needs of America's youngest viewers.

Cable television services have, in the last several years, announced their interest in providing more programming to serve young children. The results of their efforts are summarized in the next chapter, but as of this writing relatively little programming had actually been produced. The cable industry has developed a guide to the use of cable programming for educational purposes.

For programs that are now on-the-air with a primary goal of meeting the educational and developmental needs of children, however, public television is essentially the sole source.

The Carnegie Foundation's report, in surveying the landscape of children's programming, supports this conclusion; only one program that did not come from public television is cited as an example of outstanding children's television.[34]

In that review of children's programming, however, the Carnegie report does cite virtually every program on public television designed for young viewers, beginning with the two best known series in all of television for children, *Sesame Street* and *Mister Rogers' Neighborhood*.

Sesame Street is commended for over a quarter of a century of service to millions of viewers around the world: "Overall, evidence supports the conclusion that *Sesame Street* enhances learning, especially of basic skills. This historic, pioneering effort -- a creative collaboration between the federal government and the private sector -- has contributed, and continues to contribute dramatically to the school readiness of children."[35]

Similarly, *Mister Rogers' Neighborhood* is described as "yet another example of television's 'promise fulfilled.' Children who watch Mister Rogers develop feelings of self-worth.... A recent study at day care centers in Ohio found that *Mister Rogers' Neighborhood* helped children become more cooperative, self-confident, and creative. Viewers of the program were less aggressive than nonviewers and made greater gains in their verbal skills. Teachers noted that they also became better conversationalists."[36]

Other series on public television that benefit preschool viewers are also cited, including:

Long Ago & Far Away, which uses a wide variety of techniques to dramatize outstanding children's literature. The series has included programs based on classics such as *The Pied Piper* and *The Wind in the Willows*, as well as fables and folktales from cultures around the world. The Carnegie report notes that "response to the series was tremendous: teachers deluged public television station WGBH in Boston with requests for its published teachers guide."[37]

Shining Time Station, which is set in a real-life railway station "haunted" by a magical, miniature Mister Conductor. His stories about the adventures of Thomas the Tank Engine and his steam engine friends on a far-away enchanted island help the program's real-life children understand and develop solutions to their own problems and conflicts. Action for Children's Television described this series as "basic life lessons gently taught in an enchanted setting."[38]

Barney & Friends, which is the home of an incredibly popular six-foot purple dinosaur. Barney uses his magic, good sense, and limitless love of children to help his young human friends understand and face their fears and concerns. The program shows children engaging in many different kinds of physical activities, and includes a tremendous variety of classic children's songs.

Lamb Chop's Play-Along, which has introduced a new generation to the peculiar charms of the most lovable sock in all the world, Shari Lewis' Lamb Chop. This series' goal, in Lewis' words, is to "turn viewers into doers" by encouraging children to join in a wide variety of physical and mental activities, including singing, counting, rhyming, jumping, and marching.

Also cited is *Reading Rainbow*, even though the series' primary audience is beginning readers, who are typically older than preschoolers. Each episode of *Reading Rainbow* brings an outstanding children's book to life through a dramatic reading accompanied by animations of the book's illustrations. The programs often include a real-world field trip to a location related to the featured book that helps young readers connect the experience of reading with more concrete experiences; children delivering their own book reviews are another regular feature. While intended for youngsters who have started to read, the series' positive depictions of the rewards of reading are of value to younger children as well.

Finally, the report lauds public television for one series that has yet to be broadcast: *The Puzzle Factory*, which received funding in November 1991 and is now in development. *The Puzzle Factory* will be the first new daily series for preschoolers since *Sesame Street*, and is designed to complement both that series and *Mister Rogers' Neighborhood*. *The Puzzle Factory* features a diverse cast of puppets at work in a make-believe puzzle workshop, and will

focus on teaching children socialization and life skills for a multicultural, multiracial society.

Reaching Beyond the Television

In light of evidence suggesting that adult intervention significantly enhances the positive impact of television on young children, and in recognition of the primary importance of parents and caregivers in interacting with children, any effort to use television to help address the ready-to-learn needs of young children must include materials for adults to use with children, and to help adults learn how to become more involved in children's learning.

In fact, public broadcasting has already recognized this important point, and has developed and implemented a number of efforts, built around television series, that have provided both educational materials and guidance to caregivers and parents for use with the children in their care. Two of these projects involve use in day care facilities; the third reaches parents and children in a wide variety of out-of-home settings.

The *Sesame Street Preschool Education Project* and *Mister Rogers' Neighborhood Child Care Project* share a similar goal: to help child care providers make more active and productive use of the enormous investment in resources represented by these two television series. Both projects have been implemented only after careful research and testing, and both have been received very positively by child care professionals and providers.

The projects have been implemented on a national scale, but at the discretion of individual public television stations. Each of the projects has developed special materials for use by child care providers. These materials explain the pedagogical themes in each program in the respective series, describe how those themes are developed in the TV programs, and offer suggestions for a broad range of discussion topics and activities to conduct with children both before, during, and after viewing the programs. The activities include books to read, songs to sing, craft projects appropriate to young children, and a wide range of other suggestions.

When either of these projects is implemented by a station, participating child care providers attend a special introduction and training session in which they receive the materials and learn how to use them. The station typically provides a broadcast schedule so that the caregivers can plan their lessons to coincide with the broadcasts.

The Family Literacy Alliance is a third effort undertaken to reach parents and children directly; its primary goal is to encourage parents and children to read

together, using three literature-based public television series -- *Long Ago & Far Away, Reading Rainbow,* and *WonderWorks* -- to open the door.

Like the projects above, the Alliance's efforts are implemented by local public television stations, which identify social and community centers where families can be reached, and then work to stimulate reading and other shared family activities. The Alliance and its participating stations have designed a great deal of flexibility into the implementation of the program, so that each agency or center that establishes a local Family Literacy Alliance program can adapt the basic elements to meet the needs of the people it serves.

In general, though, the project uses selected episodes from the three series to provide a centerpiece to bring families together for book-based discussion and activities. In the Alliance's very successful pilot year, programs were established in such diverse settings as a shelter for homeless families, an educational center for Cambodian refugees, a Native American wellness center, an urban hospital, an Even Start program, and a rehabilitation program for female offenders.

Many similar outreach efforts have been undertaken by individual public television stations for the benefit of their own communities. Among the many examples:

KQED in San Francisco has recently embarked on a major research and planning project -- the Parents Project -- that will identify and develop enhanced services for parents and children.

WHYY in Philadelphia sponsored a workshop for parents called "How to Get the Most Out of Children's Television" to help parents use television more positively for their children's good.

WETA in Washington, DC, coordinated an extensive project including television broadcasts and outreach efforts called *Nine Months,* dedicated to improving prenatal care and nutrition.

WNIT in South Bend, Indiana, worked with local parenting organizations to create the *Parenting Project* to educate parents on a wide variety of important topics in child care.

Finally, public television has also addressed the potential for using television as a training and development resource for child care professionals. South Carolina Educational Television, working in conjunction with the National Association for the Education of Young Children, has produced hundreds of hours of instructional and training programs for day care providers.

More recently, training has been provided for Head Start teachers in diverse locations through the country through a series of live teleconferences designed

to provide up to 90 percent of the training required for a national competency-based credential. The training program, developed by South Carolina Educational Television's Early Childhood Professional Development Network, includes 40 live, two-hour seminars conducted via satellite, with an additional one hour of audio-only discussion. Training sites for this demonstration include Head Start programs in thirteen states, ranging from Native American communities in Alaska to urban programs in Chicago to rural sites in Appalachia.[39]

TOWARD A NATIONAL READY-TO-LEARN SERVICE

Having identified the scope of the ready-to-learn issue in America, determined that television can in fact contribute to improving readiness to learn, and examined some of the ways in which it might do so, this report now turns to the specific request at its heart: "the most effective way to establish and implement a ready-to-learn public television channel."

In answering this request, the Corporation has broadened the scope of the investigation from a "channel" to a "service." In this chapter, the goals of such a service are identified, and the extent of programming currently offered by broadcast and cable services for preschool children is examined in more detail .

GOALS OF A SERVICE FROM PUBLIC BROADCASTING

Broadly speaking, the primary goals of any ready-to-learn service provided by public broadcasting are to:

1. **Contribute to the improvement and development of young children's readiness to learn;**
2. **Provide parents and caregivers with materials they can use with the children in their care;**
3. **Broaden parents' appreciation for and understanding of the importance of nurturing ready-to-learn skills.**

These goals would be achieved through two primary means:

Developing a comprehensive service of high-quality programs, including materials for parents and caregivers;

Broadening the service's availability as widely as possible, to reach children, parents, and child care providers.

The first point is a clear reflection of the research information about television and children discussed in a previous chapter, demonstrating the primary influence of content in children's educational experiences with television, and affirming the value of adult mediation and interpretation.

It should be noted that developing such a comprehensive service will require new program production. While public television has made a substantial investment in children's programming, that programming has not been integrated into a comprehensive service of the magnitude contemplated here.

Programming issues are reviewed in detail in the next chapter.

Increased *availability and awareness* of ready-to-learn programming is the second necessary ingredient in an effective national service, so that it can reach more children with greater regularity. It is important to note that public broadcasters' intentions are to make ready-to-learn programming more easily and readily accessible to children and families, and not necessarily to encourage children to spend more time watching television.

Public television's children's programming already offers families an important educational and developmental resource. Currently, however, only about 45 percent of preschool children watch preschool programming on public television in an average week.

The aim of increasing accessibility and awareness of such programming is to increase the percentage of children who view it -- broaden the reach -- rather than increase the amount of time the same 45 percent of children watch.

The accessibility of a ready-to-learn service is governed primarily by the means of its distribution; these issues are covered subsequent to programming.

Finally, the implementation of any ready-to-learn service should be accompanied by the implementation of a program to evaluate its effectiveness, both to ensure that the service is achieving its goals, and to point the way toward achieving them more fully and efficiently.

The conduct of such evaluations is already a well established procedure for children's programming currently airing on public broadcasting, ensuring that the programs meet their developmental and educational objectives. These evaluations would be a part of the development and broadcast of any individual series created for the ready-to-learn service as well, ensuring that these new series meet their pedagogical goals.

In addition, an evaluation program should be developed for the service as a whole, to track and measure its effectiveness on the overall school readiness of preschool viewers.

Secondary Goals

During the discussions that helped shape this report, a number of other goals were considered important regarding any implementation of a ready-to-learn service through public broadcasting.

4. **The service should reach as much of the nation's population as possible.**

Public television was founded with the intention of making high quality noncommercial television freely available to every person in the country. For such an important social function as improving children's readiness to learn, universal reach was considered a highly desirable goal to pursue.

5. **A ready-to-learn service should be accessible to children in their homes, while also supporting use in group care environments.**

Audience research, presented later in this chapter, shows that the majority of preschool children are in home settings during the day. A solution reaching only day care and group care environments, while an important and valuable service, would effectively eliminate too much of the target audience.

6. **A successful service must involve a national solution, appropriate for use in all states.**

Ready-to-learn needs are not limited to children in urban areas, nor to any one region of the country, nor, for that matter, to children whose native language is English. Any ready-to-learn service implemented through public television should therefore be equally valuable in rural, suburban, and urban settings, and should address the needs of a multilingual audience.

7. **Any new ready-to-learn service created through public television should not reduce the amount of children's programming currently available on local public stations.**

Any new service should not "cannibalize" existing children's programming; that while such a service could augment or even duplicate existing programs, it should not remove them from public stations' current broadcast schedules.

8. **Local public stations will need to be actively involved in the solution.**

For a ready-to-learn service to be truly effective, it must reach out to people, a goal that is best achieved by public television stations working within the communities they serve. The strong community roots of each independent

public television station is one of the great strengths of the our public television system.

9. **The primary target is 2-5 year olds, but the service should also support the continuing ready-to-learn needs of 6-8 year olds.**

A service that continued to meet the needs of children in early elementary school would be desirable, but only if such an expanded service could successfully meet the needs of preschoolers first.

THE CURRENT ENVIRONMENT OF PRESCHOOL PROGRAMMING

Before potential implementation strategies for a national ready-to-learn service from public broadcasting are discussed, the current environment of developmentally sound television programming, including public television, commercial television, and cable services, should be examined more closely .

As noted in the last chapter, when *quality* of developmental and educational content is the measure, the preschool programs on public television are considered by most experts in child development as being without peer.

Here, however, the *quantity* and *accessibility* of programming are the issues under consideration. Regular programming that could be classified as "educational" for preschoolers is offered by a number of different sources:

Public Television (universally available): 40+ hours per week. Public television does not have a single national schedule of children's programming; each station independently determines its own schedule. However, a recent survey[40] of the programming practices of 39 representative stations throughout the country revealed an average of six hours per day of preschool children's programming, ranging from a low of four hours per day to a high of nine hours.

No other national *broadcast* services offer any significant amount of developmentally-based children's programming; however, a number of cable services have introduced educational programming for children.[41]

Black Entertainment Network (34 million subscribers): 0.5 hours per week. Black Entertainment Network's sole educational offering for preschoolers is the half-hour program *Story Porch.*

The Disney Channel (6 million subscribers; extra-cost service): 12 hours per week. The Disney Channel's programming includes *Fraggle Rock* and

Adventures in Wonderland. However, this premium cable service is quite limited in the number of households it reaches.

The Learning Channel (17 million subscribers): 30 hours per week (15 hours repeated once). The Learning Channel has launched a service it calls "Ready, Set, Learn," comprising a daily (weekdays) six hour block of programming (three hours of original programming repeated once). One of these series, *Zoobilee Zoo*, has aired on public television in years past.

Nickelodeon (56 million subscribers): 20.5 hours per week. Nickelodeon's schedule includes programs such as *Eureeka's Castle, Lunch Box Theater*, and *Maya the Bee*. It also has the broadest reach of any of the cable services offering preschool programming.

Showtime (10 million subscribers; extra-cost service): 7 hours per week. Showtime's programming includes series such as *American Heroes and Legends* and *Shelley Duval's Bedtime Stories*. Like Disney, however, Showtime is relatively limited in its reach.

Conclusions

While a number of cable services do offer a substantial quantity of programming, none has yet demonstrated the combination of a significant commitment of scheduled time with a significant commitment to original production of programming whose *primary* goals are developmental or educational.

Even those cable channel services which devote a significant number of hours to educational programming for pre-schoolers, however, have limited resources for original production and quite limited reach.

Clearly, public television currently offers the strongest service for preschoolers -- a solid and effective base from which to launch a more extensive ready-to-learn service. This programming base, when combined with public station's outreach services and local presence, provides an even stronger educational resource.

PROGRAMMING FOR A READY-TO-LEARN SERVICE

Research cited earlier in this report demonstrates repeatedly that the positive effects of television on children are most strongly related to the programs they watch and the context in which they watch them. These results confirm the value of the painstaking care taken in the development and production of the children's programs currently on public television. Further, these research results confirm that the most important aspect of any national ready-to-learn service will be the programming it offers.

Bluntly stated, there cannot be the kind of ready-to-learn service contemplated by Congress unless there is new programming to advance its educational and developmental goals.

This chapter broadly addresses the issues of programming for a ready-to-learn service offered through public broadcasting, including the types of programs that would be most desirable and estimates for the costs of producing them.

A NEW VISION FOR TELEVISION

As noted in the previous chapter, public broadcasting currently offers television's strongest and most extensive schedule of programming for preschool children, programming that could -- *should* -- serve as the core of a national ready-to-learn service.

However, in contemplating a comprehensive, effective national television service, created specifically to enhance the school readiness of America's children, public broadcasters look well beyond the programming currently available toward a fundamentally different kind of television -- different not in its content, but in the *context* it helps to create for the children who watch it.

Television programming envisioned for a national ready-to-learn service would strongly encourage dynamic interaction among the children viewing it, and between children and their adult caregivers.

New ready-to-learn programming for children would reach well beyond the television set, not only in its educational and developmental goals, but in its *methods* as well, through the use of ancillary educational materials such as activity books and magazines. It would *involve* children, both in watching and understanding the content of the television programs they view, and in following their viewing with additional activities and projects that extend and reinforce the educational and developmental lessons they have learned.

To achieve this goal, the service would also include new programming that addresses and involves adult caregivers -- including parents and other family members, and child care professionals -- to a much greater degree.

As envisioned by public broadcasters, the ready-to-learn service would help adults create an educational context for children's television viewing, by providing the information adults need to mediate and interpret programming so that children can reach a more complete and fuller understanding of the topics and themes covered.

Adult programming should address the needs of parents as well, providing the context they need to understand the value of working with their preschool children to improve school readiness skills, and effectively demonstrating how to do so.

Finally, the training and development needs of professional caregivers should be addressed through the production of focused educational programming designed to help caregivers achieve a national proficiency-based standard created in conjunction with other production for the ready-to-learn service.

In short, public broadcasters conceive of the content of a ready-to-learn service as a comprehensive body of television programming and ancillary materials designed to address the issues of school readiness through a coordinated, inclusive effort reaching children, parents, and caregivers. Issues regarding programming for each of these audiences are discussed in greater detail below.

Programming for Children

Public television currently broadcasts an extensive schedule of preschool programming. This body of programming would form the core of any ready-to-learn service, particularly in its first years.

However, while public broadcasters and producers have made a conscious and successful effort to create programming that addresses a variety of

educational and developmental needs, there is still more that can be done, particularly in the context of a comprehensive national ready-to-learn service with a goal of serving the pedagogical needs of preschoolers.

Thus, the goal of new production in children's programming would be to build on the current body of programming. Such new programming would be developed only after careful evaluation of the pedagogical needs of preschoolers, just as it has been developed to date.

Currently, however, scholarly work on the ready-to-learn needs of children is in a relatively early stage of development; in fact, the list of readiness skills included in the Appendix to this report is among the most extensive yet published. A clear consensus has not developed within the educational and academic communities as to what constitutes the specific elements of national standards or objectives for readiness to learn.

Therefore, public broadcasting, in developing a body of television programming and ancillary materials to address these objectives, would work closely with federal agencies (e.g., the Departments of Education and Health and Human Services) and private organizations (e.g., the Carnegie Foundation for the Advancement of Teaching and the National Association for the Education of Young Children) to ensure that the materials created meet clearly identified pedagogical needs. Public broadcasting would also pursue research and testing to ensure that new programming and services are most effective in meeting the needs of intended audiences.

In addition to the television programming, ancillary materials to encourage and channel further activities on the part of children would be created wherever appropriate, including materials for programs that already exist. These materials might include workbooks, activity books and magazines created for children, and parent and caregiver guides created for adults.

Programming for Adults

Programming for adults provided by a ready-to-learn service comprises three quite different types of programs:

1. Focused information to help adults mediate and interpret specific programs for children, and provide suggestions for follow-up activities and projects;
2. General information about broader issues of parenting and child development;
3. Professional training and development for child care providers.

The first kind of information would best be provided as a regular accompaniment to the service's children's programming. Since the information to be provided must be specific to each program shown, the most

efficient means of presenting it would be in conjunction with each program, through the use of short, one- to three-minute inserts ("bookends") at the beginning and end of each show. At the start of the program, the segments would outline the content and key themes to be covered, and provide suggestions for guiding children through difficult concepts, for example. Concluding segments would review the primary lessons, offer ideas for follow-up activities and projects, and perhaps suggest resources for projects outside the home or center, such as field trips.

It should be noted that for this proposal to be implemented fully throughout the ready-to-learn service, new production for public broadcasting's current children's programs would be required as well.

The second type of adult programming could range from series focused on practical parenting skills, to series and special broadcasts covering the importance of developmental and other school-readiness issues, to programming for the general public regarding broad national concerns about school readiness. These series specifically produced for parents and caregivers could be broadcast during afternoon or evening hours to reach their audiences, or distributed through alternate methods such as cable systems or videocassettes.

Finally, training and development programming for child care professionals should be developed to aid in national efforts to certify caregivers to uniform standards. As noted earlier, a considerable body of such programming has already been produced. It should be supplemented as necessary, and made available nationally.

COSTS

The primary variable in production costs is, obviously, the amount of new production required. However, insofar as the most basic parameters of a new ready-to-learn service are not established, it is impossible to accurately identify a specific level of production required to fill it.

For the purposes of this report, therefore, the Corporation for Public Broadcasting has developed cost estimates for the amount of production required to support three different ranges of a national ready-to-learn service:

A high level of service, defined as offering up to 16 hours of daily programming on weekdays and a relatively low level of repeated programs (five times per year);

A medium level of service, defined as offering up to 12 hours of daily programming on weekdays and a relatively low level of repeats (five times per year);

A low level of service, defined as offering up to 8 hours of daily programming on weekdays and a low level of repeats (five times per year); or up to 16 hours of daily programming on weekdays and a *high* level of repeats (10 times per year).

A note regarding the level of repeated programs is in order. While repetition levels of even five times per year may seem excessively high to adults, children can absorb a much higher level of repetition without losing interest; one need only consider how many times a young child will watch a favorite videocassette to be convinced.

In fact, not only will preschoolers not lose interest in a program because of repetition; they may very well learn something new with each repeated viewing. Currently, repetition rates of up to four times per year are not uncommon at public television stations that offer a high level of preschool programming.

Programming Available; Programming Required

Public television's principal national distributor, the Public Broadcasting Service, is currently receiving new production in seven series for preschool children, at the following rates:

Barney & Friends, 10 new hours per year;

Lamb Chop's Play Along, 17.5 new hours per year;

Long Ago & Far Away, 1.5 new hours per year;

Mister Rogers' Neighborhood, 7.5 new hours per year;

Reading Rainbow, 3.5 new hours per year;

Sesame Street, 40 new hours per year, but 130 new hours including reversioned episodes;

Shining Time Station, 12.5 new hours per year.

New production for all seven series totals 92.5 new hours annually, or 182.5 new hours including the reversioned programs in *Sesame Street*.

However, because of multi-year use rights on programming, public television actually has about 400 hours of preschool children's programming available for use. Assuming a new ready-to-learn service would use all currently available series, it is a simple matter of subtraction to arrive at the number of hours of new production required to support each of the service levels outlined above.

Note that even the low service level will essentially require the current production rate of preschool programming to more than double (counting new production only, excluding reversioning). Production rates to meet the requirements of the high service level would be more than *seven times* current production.

Costs

Production costs for the seven children's series named above range between $152,000 and $811,000 per hour, and average $380,000 per hour.

Using the average figure for these children's series,[42] two separate production costs for each service level have been calculated: first, for the initial production required to create that complete body of programming to "fill" the service; and second, for ongoing annual costs required to reversion programs and produce replacement series as rights to original programming expire.[43] The initial costs, required to create the substantial new body of programming, would likely be spread over several years due to limits on production capacity. Program production and maintenance costs range between $57 million and $274 million to produce the required programming to "fill" the service, and between $7 million and $34 million to maintain the service in subsequent years. The costs for the service levels are:

High service level: $274 million in initial costs; $34 million annually in ongoing costs.

Medium service level: $171 million in initial costs; $21 million annually in ongoing costs.

Low service level: $57 million in initial costs; $7 million annually in ongoing costs.

Outreach and Promotion Efforts and Costs

One of the primary goals of a national ready-to-learn service is to make high-quality programming available to a higher percentage of America's children; doing so effectively will require a significant outreach and promotional effort, implemented at both the national and local levels.

A ready-to-learn service will not achieve its full potential if the people whom it can benefit are not aware that it exists. As such, a significant budget should be allocated to a coordinated national promotional and public awareness campaign coincident with the service's launch. Experience has also shown the necessity of ongoing promotional and awareness efforts, particularly for a

service whose primary audience is continually "graduating," and which must therefore constantly bring in new viewers to maintain its vitality.

Estimated costs for an adequate promotional effort to accompany the national launch of a ready-to-learn service are $10 million for the first year, and $5 million annually for ongoing promotion in subsequent years.

Beyond promotion, however, a ready-to-learn service such as that envisioned by public broadcasters would require an active national outreach program to encourage and build the involvement of parents, child care providers, and children that is so essential to the service's ultimate effectiveness. Public broadcasters have considerable experience in implementing national outreach efforts; the examples of *The Chemical People* and *Project Literacy U.S.* have already been mentioned.

Such efforts require coordination and materials development at the national level, and a great deal of staff time and effort at public television stations as well. The estimated costs of such an effort total $15 million for the first-year, including $5 million in national development costs and $10 million for local implementation throughout the public broadcasting system; and $15 million for subsequent years, to support ongoing system-wide efforts.

SUMMARY

The effectiveness of a national ready-to-learn service is related more closely to the quality and effectiveness of its programming than it is to any other single factor. The service will succeed to the extent that its programming advances developmental and educational goals.

To achieve this end, public broadcasting envisions programming that creates *active* television; television that engages the interest of children, and extends that interest through related activities; that encourages parents and caregivers to be equally interested and involved; that educates parents and caregivers to the developmental needs of children; and that provides caregivers with greater opportunities for professional development.

Such programming is expensive to produce, and even a modest level of national service will require fairly extensive production. However, the research into the effects of the public television's current children's

programming demonstrates that an investment in carefully created television programming based on developmental and educational needs pays dividends in the form of positive learning experiences.

As outlined, the programming for this national ready-to-learn service represents one of the most ambitious efforts in broadcasting to harness the power of television; but it is an effort that would be built on the solid experience of a quarter of a century of service to America's preschoolers.

THE AUDIENCE AND HOW TO REACH THEM

There are approximately 15 million preschool children in America aged two to five. These children, and the adults caring for them (parents, relatives, and child care providers) are the primary audiences for a national ready-to-learn service.

This chapter reviews research into their physical location, and explores their accessibility through a variety of different television technologies. In addition, means of reaching child care professionals for training and development purposes are briefly considered.

WHERE ARE THE CHILDREN?

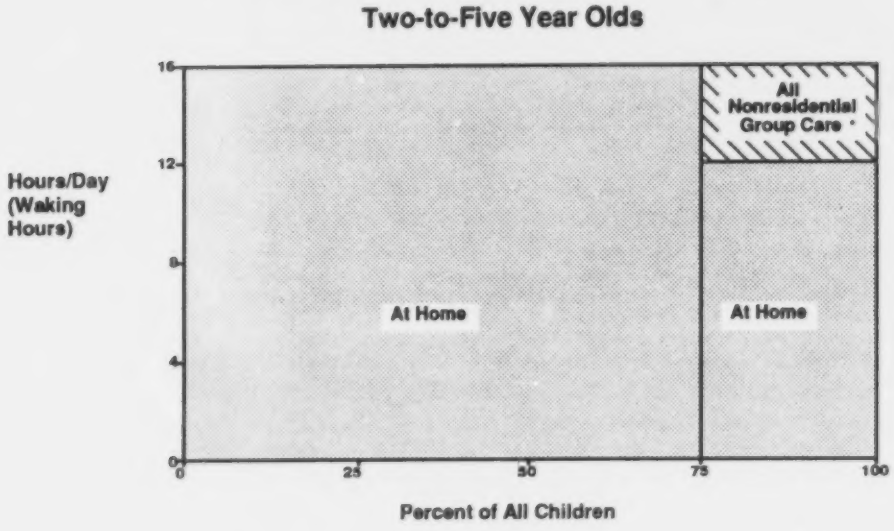
Despite the increasing numbers of mothers in the paid labor force, most children are in someone's home during the weekday -- if not their own, then someone else's.

The majority of children aged two to five (55 percent) are in their own homes during the day. Another 20 percent are in a relative's home, or in a home-based day care setting. Only 19 percent of children are in a nursery or preschool, or child care center.

Thus, fully three-quarters of the children in the primary target audience are in a private home throughout nearly all of every weekday.

Moreover, the remaining 25 percent of children who are in a more formal preschool or day care setting are in that setting for an average of between four and five hours a day; leaving them at home for a majority of the day as well, as shown in the chart below.[44]

MOST KIDS ARE HOME ALL THE TIME, ALL KIDS ARE HOME MOST OF THE TIME



* 2-5 year olds in group care are in an average of 4-5 hours per day

The majority of six to eight year olds, a possible additional audience for a ready-to-learn service, are also at home during after-school hours, with 68 percent in a residential setting compared to 31 percent in nonresidential group care or using another arrangement.[45]

Perhaps more importantly, however, there is a clear relationship between a child's location during the day and family income, and between the child's location and the mother's educational attainment.

As family income drops, children are far more likely to be found at home with a parent. Just 32 percent of children from families with an annual income greater than $40,000 are at home, while 68 percent of children from families with incomes below $10,000 are at home.

The results are similarly dramatic when comparing the educational attainment of mothers. The children of women who dropped out of high school are almost twice as likely to be at home with a parent than the children of women who attended at least some college.[46]

Conclusions

It should be clear from the above discussion why public broadcasters have made reaching children at home a goal of any ready-to-learn service offered

through public television: home is where the children are. A ready-to-learn service that only reaches child care centers will miss a great majority of the children who stand to benefit from it.

Moreover, those children who are more likely to need the educational and developmental advantages that could be provided by a national ready-to-learn service -- that is, children in lower-income households and children whose parents have themselves received less education -- are found at home in disproportionately large numbers.

OPTIONS FOR DELIVERING A READY-TO-LEARN SERVICE

The continuing pace of technological change has radically altered the landscape of television broadcasting in the last fifteen years, and continues to do so today. Cable, which now reaches a majority of television households, has changed the concept of "broadcasting" to "narrowcasting," as channel capacities continue to grow and ever more specialized services are developed to fill them. Videocassette recorders (VCRs) are now in a substantial majority of homes, allowing television producers to bypass broadcast technologies altogether.

Among the less well-known technologies that could have an impact on broadcasting in the near future are home satellite dishes that allow consumers to receive Direct broadcast satellite (DBS) signals, bypassing television stations and cable systems alike. Microwave television transmissions (also called ITFS, for instructional television fixed service) are in use by public broadcasters for special services such as the delivery of school programming, and the alternate broadcast technologies of low-power and ultra-low-power television are feasible. Finally, videodiscs and multi-media computers with video capability are also beginning to make headway in home sales.

In preparing this report, the Corporation for Public Broadcasting examined all of these technologies to evaluate their suitability for delivering a national ready-to-learn service.

All except traditional over-the-air terrestrial broadcasts, cable casts, and some form of VCR delivery were eliminated. At the present time, the alternate technologies are either not sufficiently well established (low-power and ultra-low-power television, videodiscs and multi-media computers), or require potential users to buy expensive, specialized equipment (DBS, microwave, and, again, videodiscs and multi-media computers).

The three remaining technologies, however, do have a sufficiently high penetration of U.S. households to be considered for use in delivering a ready-to-learn service with a reasonably broad reach. Cable television is currently installed in 57 percent of U.S. households, so that a ready-to-learn service distributed by cable could, at least theoretically, reach that many households.

At least one VCR is found in 73 percent of households, so that ready-to-learn programming distributed by videocassette could be viewed in almost three-quarters of U.S. homes.

Finally, fully 98 percent of U.S. households can receive regular broadcast television (any station).[47]

Comparing Media

Of the three alternatives, regular terrestrial broadcast television clearly has the broadest reach. More to the point, public television's regular broadcast reach is almost as universal as overall reach; public television reaches 99 percent of all U.S. households.[48]

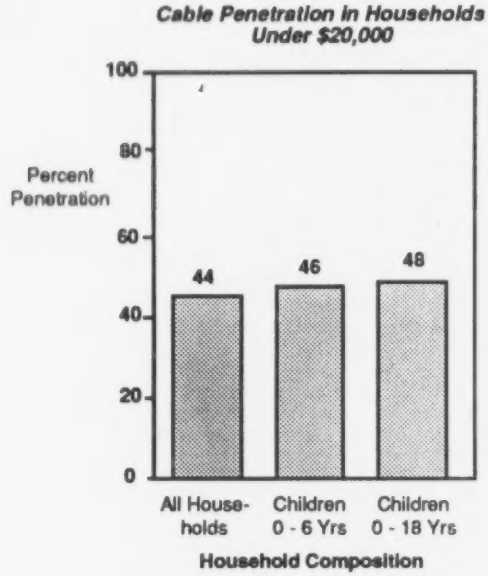
VCR's are found in the next highest percentage of homes, an average of 73 percent. However, the percentage of homes with at least one VCR is clearly related to household income, as one might expect. Ninety-one (91) percent of households with incomes above $40,000 have a VCR, as compared to just 39 percent of households where total annual income is less than $15,000 (see chart below).[49]

The same is generally true of cable penetration. While average cable penetration is 57 percent of U.S. households, penetration is higher in households with higher income -- 64 percent when income is $40,000 or above -- and lower in lower income households -- just 41 percent when income is less than $15,000 (see chart below).[50]

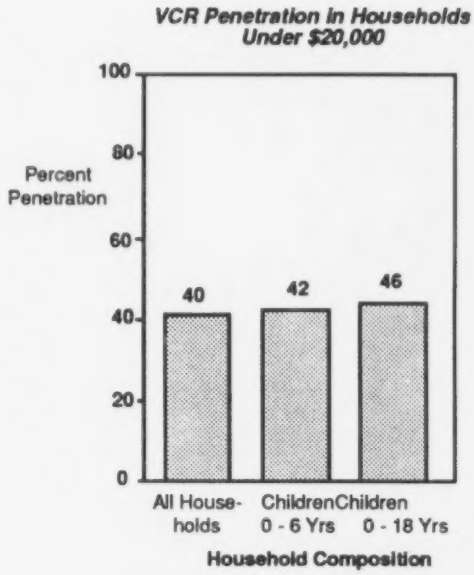
Although the variation in cable penetration between high and low income households is smaller than the variation in VCR availability, the total number of households accessible by cable is also significantly lower.

LOWER INCOME HOUSEHOLDS HAVE LOWER CABLE AND VCR PENETRATION

Only Slightly Higher Penetration In Households With Children



Source: 1992 Fall Mediamark Research Inc.



Source: 1992 Fall Mediamark Research Inc.

Finally, if a ready-to-learn service were distributed using *both* cable and videocassettes, it still would be inaccessible in a substantial number of households, particularly lower income households. Thirty-three (33) percent of households with children under six and total income under $20,000 do not have either cable service or a VCR.

Therefore, 33 percent of lower income households with children under six -- 33 percent of the families who most need a ready-to-learn service -- can *only* be reached by over-the-air broadcast, unless a major (and extremely costly) effort were made to put additional equipment within their reach economically.

Reaching Child Care Professionals

Providing professional training and development opportunities for child care professionals is another important goal of a nation ready-to-learn service. As this type of programming has quite different goals and uses, however, its distribution clearly presents a separate set of issues.

Currently, a number of public television stations provide college-credit programming in partnership with local institutions of higher learning, using

over-the-air broadcasts. Students tape or watch the broadcasts as part of their coursework, which also may include the use of textbooks, attendance at seminars and completion of regular assignments. A faculty member monitors the students' progress, answers questions they may have, administers any required exams, and issues grades. This model could certainly be followed with professional courses in child care.

South Carolina Educational Television's Early Childhood Professional Development Network offers another model, one which combines national interactive teleconferences to link students at a number of different sites together, via satellite, for a single class. This approach provides a more structured learning experience for students, and could make use of public television's satellite facilities while not requiring over-the-air broadcasts.

Distribution of course materials on videocassette is a third option that is more realistic for this audience.

Conclusions

Cable television, with its dozens of specialized channels (perhaps soon to be hundreds), would seem at first to be the medium best-suited for distribution of a specialized ready-to-learn service.

Unfortunately, cable television is not currently available in well over half of the nation's lowest income households, and overall is available in fewer than three of every five households.

Videocassettes are another potentially attractive means of distributing ready-to-learn programming. They are convenient to use because they can be viewed according to household or preschool schedules, and programs of interest can be repeated as often as desired.

However, VCRs are available in an even smaller number of lower income households than cable television, and duplication and distribution of videocassettes on a national scale is a massive, complex, and expensive undertaking.

In short, if universal access to ready-to-learn programming is an important criterion in evaluating the potential value of a service -- and particularly access among those families who are most likely to need it, and most likely to benefit from it -- then distribution using regular terrestrial broadcast television deserves very serious consideration.

DELIVERING A READY-TO-LEARN SERVICE

This chapter outlines in detail three possible configurations of a national ready-to-learn service from public television:

An option for providing virtually universal access by enlisting public television stations to dedicate their daytime over-the-air broadcasts to an uninterrupted daytime block of ready-to-learn programming;

A national cable service using cable systems to deliver ready-to-learn programming provided by public broadcasters;

An approach in which no attempt is made to unify the delivery of ready-to-learn services nationwide, but which allows each public television station to exercise its own discretion in configuring a ready-to-learn service;

Each approach is considered in detail, including its advantages, the challenges that would be faced in its implementation, and the likely costs that would be associated with making it a reality.

Finally, a fourth fall-back option, under which any additional ready-to-learn programming is squeezed into the current schedule of preschool programming, is also briefly discussed.

A READY-TO-LEARN SERVICE WITH UNIVERSAL ACCESS

Under this option, public television stations would jointly enlist in the ready-to-learn effort, and commit themselves to providing a daily over-the-air broadcast service dedicated to ready-to-learn programming.

This is a dramatic proposal that, if implemented, would represent a significant rededication and, to some extent, a redirection of public broadcasting in this country.

It is also by far the most realistic option for making a national ready-to-learn service available to virtually every household in the country, using existing technology and equipment.

Under this approach, the Public Broadcasting Service (PBS) or another national distributor would develop a national programming feed, using existing preschool programs and funding new series for specific developmental and educational needs (as outlined in the chapter on programming), and would supply between ten and twelve hours of high quality ready-to-learn programming to all public stations every weekday, by satellite.

Implementation of this link in the service would be fairly straightforward. It would require additional equipment and staff at the national distribution organization, but it would not require any new technologies, or any fundamentally new operations.

Public television stations throughout the country would then broadcast the ready-to-learn service over the air during the day, beginning in the morning at perhaps 7:00 to 8:00 am and continuing until 6:00 pm, when in most markets the MacNeil/Lehrer NewsHour begins the evening's prime time schedule. In broadcast markets with more than one public station, just one of the stations need provide the ready-to-learn service.

Implementing this portion of the service would require stations to purchase additional equipment associated with receiving a new satellite signal. In addition, broadcasting ready-to-learn programming would require stations to move programming that is currently broadcast during the day and serves audiences other than preschool children. This programming could be moved to an alternate method of delivery, rescheduled, or dropped; the first two options would involve additional costs.

Advantages

There are a number of important advantages to this implementation of a ready-to-learn service, but the most fundamental is its near universal availability. This is simply the only option for providing ready-to-learn services that delivers nearly universal reach. If implemented tomorrow, it would be available in 99 percent of U.S. households tomorrow.

It will deliver ready-to-learn programming to every home, every home-based day care center, every nursery school, every preschool, every community center: to virtually every place in America where preschool children could conceivably be.

The use of public television stations' current broadcast channels for a ready-to-learn service also represents a sensible allocation of an increasingly scarce public resource: the broadcast spectrum itself. As more and more technologies

compete for a portion of that finite broadcast spectrum, good public policy dictates that it be used for those services offering the greatest public benefit, and needing to reach the broadest audience; a national ready-to-learn service certainly qualifies under both criteria. The accessible technology of over the-air broadcasts matches well with the goals of a ready-to-learn service.

Moreover, complete implementation of this option does not require a substantial investment in new equipment, either by the possible national distributors or the hundreds of individual public television stations, almost all of which have experienced budget strains during the recent recession.

In addition, because this approach creates a unified national ready-to-learn service, it allows for service enhancements and migration to alternate delivery systems or technologies should they become available.

Finally, the creation of a national over-the-air ready-to-learn service is an act for which public broadcasting is uniquely well suited. In fact, public broadcasting is the only television service that could conceivably undertake such an enterprise; commercial television simply cannot create a comparable service.

It is an opportunity that only public broadcasters can seize.

Challenges

The most obvious challenge involved in implementing a universally available service is the programming that is currently being broadcast during daytime hours.

It is true that virtually all public television stations already devote at least some of their daytime schedule to preschool programming; the amount varies between four hours and nine hours per day.[51] In addition, over the last few years, as the Corporation for Public Broadcasting and the Public Broadcasting Service have encouraged the development of new programming, public television stations have increased the amount of airtime they commit to children's programming.

However, it is also true that virtually all stations use some portion of the daytime schedule to serve other audiences as well. With few exceptions, this daytime programming falls into one of three categories:

Instructional television, or programming designed expressly for use in school classrooms;

Adult learning series, or programs designed for use in college-level teaching that can be viewed as part of a formal credit course in conjunction with a local institution of higher learning, or can simply be watched for informal educational value;

How-to programs, or the familiar service programs -- cooking shows, home and auto repair programs, exercise programs, and the like -- that on weekdays primarily serve adults and, particularly, senior citizens.

If public television stations were to implement a national over-the-air ready-to-learn service, many stations would have to change their daytime scheduling and find alternative methods to deliver these and other programs to their audiences.

The simplest alternative could be found in those areas that are served by more than one public television station, a condition that applies to most, but not all, of the nation's largest cities. In these markets, stations might develop cooperative arrangements where one station would take the lead in providing ready-to-learn services, and the other station(s) could help provide any programs that were displaced by the service. Beyond the largest markets, this option is, for the most part, not available.

There are, however, a number of other alternate delivery methods that could be used in markets served by just one public television station, although many of these options would involve either additional expense on the part of stations, or some reduction in the level of these other services.

Instructional television services have the greatest number of options for alternate delivery, because they are delivered to fixed sites, allowing for the economical use of alternate technologies. As mentioned above, some stations already use ITFS (microwave) technology to deliver school programming; that is an option for many other stations as well. Cable delivery of school programming is another possibility, particularly as the cable industry seems to be increasingly interested in providing assistance to education. For school services that must reach a geographically broad area (e.g., statewide systems, or services in rural areas), direct satellite transmission is a third alternative. For most stations, however, any of these options would involve at least some additional capital expenditures.

Another option that involves minimal additional expense and has been successfully used by a number of public television stations is the broadcast of instructional programs during overnight hours. Schools record the programs on videocassettes, and teachers then use the cassettes in their classes. Many teachers prefer teaching with cassettes as compared to direct broadcasts because cassettes afford greater control, and in fact stations could also distribute programs directly on videocassettes (and many already do). These options might well involve additional costs as well; the former through higher operational costs associated with a longer broadcast day, and the latter through the costs of purchasing, duplicating and distributing videocassettes and securing additional rights.

There are, in addition, other possible difficulties involved in shifting instructional television services to any of these alternate delivery systems, the

first being the availability of required equipment in the schools being served. Shifting the means of delivery programming will, to a greater or lesser degree, impose an equipment burden on schools as well as on stations, and many of the nation's school systems are financially ill-equipped to meet additional equipment burdens.

Finally, shifting the delivery of instructional services could introduce revenue considerations for those public television stations that supply instructional programming on a contract basis, and even legal considerations to stations whose instructional services are statutory. The Corporation for Public Broadcasting intends to undertake a detailed survey to determine the extent and nature of these service commitments.

Adult learning and how-to programs have fewer options, since they serve the public at large. Such programming could be rescheduled to other times -- for example, weekends -- although this would certainly involve a reduction in the overall number of broadcasts, and perhaps a reduction in the number of programs as well (public stations often repeat these programs during the course of a week). Such an arrangement might be supplemented by stations offering videocassettes of the affected series through libraries, community and senior citizen centers, and video stores.

A more ambitious alternative for delivering these programs would be through local implementation of a separate, new cable channel, programmed by the public television station and devoted exclusively to adult learning, how-to, and other service programming for adults. An important benefit of this option is that it offers the possibility of expanding services that address the needs and interests of adult viewers. However, it would require stations to negotiate channel space with their local cable television systems, and might involve capital expenditures (for delivering programming to the cable system) as well. It would also involve reduction in reach to the adult audience, as national cable penetration is just 57 percent in U.S. households.

Public Broadcasting's Structure

A second fundamental challenge to the implementation of a universal daytime service is found in the traditions and structure of public television.

Very simply, there is no precedent in public television for the universal delivery of such an extensive schedule of programming. In fact, public broadcasting's traditions and structures are quite the opposite: every public television licensee makes its own programming decisions, locally and independently, to meet the needs of the communities it serves. This emphasis on local control and independence makes unified, collective decision-making difficult, and in fact it has been rare.

No single organization is in a position to command public stations to carry any programming, or to promise universal delivery of any programming,

even for a service with unquestioned public policy value, as that service also involves the displacement of existing services with their own values and audiences.

Thus, if the primary goal of a national ready-to-learn service is universal accessibility, some mechanisms must be introduced into the implementation that will:

1. Encourage stations to carry the service;
2. Provide them with assistance in exploring and implementing alternate delivery strategies for existing daytime programming.

For example, public television stations could be encouraged to carry this daily service on an experimental basis. This experimental period should be sufficient to allow a complete evaluation of its results, such as two or three years, and should permit assessment of both the obstacles that must be overcome and the benefits in increased awareness and use of the programming.

Additional mechanisms to encourage implementation may take the form of special financial assistance through grant-making programs to cover additional capital expenditures and operating costs for moving existing services; or grant-making programs that reward stations for providing ready-to-learn services; or they may be in the form of technical leadership and assistance in exploring alternate delivery systems, and strong coalitions with allied industries (e.g., cable operators) to encourage cooperative solutions to program scheduling and delivery issues.

Costs

The direct costs involved in implementing a national ready-to-learn service along the lines discussed in this chapter are estimated to total between $20 million and $45 million,[52] *exclusive of new programming and promotion* (see the following chapter for estimated total costs).

Of that cost, an estimate by the Public Broadcasting Service suggests that $2.2 million would be incurred by a national distributor for additional equipment and staff required to develop, administer, and deliver the ready-to-learn programming feed to stations. $2.4 million would be incurred by stations for the installation of receiving and decoding equipment to accommodate the new ready-to-learn satellite feed.

Remaining costs would be incurred by stations to cover broadcast operating costs currently funded through provision of instructional television services ($15 million to $40 million). These estimates are necessarily conjectural, and would vary considerably depending on the contractual and statutory services displaced by the ready-to-learn service.

Further costs would include costs for the delivery of program services displaced by the ready-to-learn service. As noted above, the Corporation intends to conduct a detailed survey to determine the extent of these other service commitments and the associated costs for delivery by alternative means.

For a discussion of possible sources of revenues from a service configured this way, see page 78.

Summary

Using public television's over-the-air broadcasts for a ready-to-learn service is the *only* option that can deliver near-universal reach -- reaching 99 percent of American households -- for a significantly greater body of programming in the near term.

It uses the one television technology -- over-the-air broadcast -- that can deliver universal access for a service that deserves universal access.

It is relatively inexpensive to implement, and requires little in the way of new infrastructure or capital expenditures.

However, implementation of this approach would represent a major policy decision by public television stations, a decision that would essentially constitute a redefinition of the system's goals.

While public television stations justly pride themselves on their exemplary services for preschoolers, turning over the entire broadcast day to preschool services would require another, higher level of system-wide commitment that, to some, would come at the expense of other worthy audiences served by public television.

Thus, this approach can succeed only to the extent that the needs of these other audiences can be met through alternate means.

National Cable Feed

Under this option, the Public Broadcasting Service or another national distributor would develop a national programming feed as in the universal access approach. However, instead of being provided to public television stations for over-the-air broadcast, the feed would be delivered directly to cable systems via satellite, and would then be delivered to users through cable systems.

Because the local cable channels used for the ready-to-learn service could be fully dedicated to it, none of the broadcast programming currently offered by public television stations would be displaced. Ready-to-learn programming could be offered 24 hours a day; in fact, cable systems would likely balk at a service that offered less than round-the-clock programming.

Under this approach, the role of local public television stations in the delivery of programming would be minimal; the programming feed would be delivered directly by satellite from PBS or another national distributor. The capability would exist, however, for each station's identification to be inserted into the service, so that viewers in each station's area would associate the service with their local public television station.

In addition, it would be possible for a station to capture the programming feed before supplying it to the cable operator. Under this approach, the station could insert its own identification -- or, for that matter, its own programming -- into the service. This option would, however, require the station to purchase and install equipment.

While station involvement in delivering programming would be minimal, considerable involvement in community awareness, public information, and promotional activities would be required, as outlined on pages 46 - 47, to ensure widespread community awareness of and involvement in the service.

Since this approach would most likely result in a 24-hour service, as opposed to the ten- or twelve-hour service envisioned under the universal access option, it would require either substantially more programming or a substantially higher level of repeated programs. It would, however, be easier to schedule programming targeted to adults, since evenings as well as daytimes would be completely available under this approach.

Advantages

Compared to the universal access approach, a national cable feed would offer virtually no disruption of current public television programming and services. In fact, it would not require any significant involvement by local public television stations at all, although its implementation would certainly benefit from community awareness and promotional support provided by local stations.

In addition, it would presumably be available 24 hours a day, and would thus be somewhat more accessible for those cable subscribers who could receive it in the first place.

Implementing a national cable feed is a moderate-cost alternative, and actually involves lower costs within the public broadcasting system than the previous alternative, as noted in the following section.

However, carriage of public television's existing programs on a separate cable channel may require renegotiation of use rights from the producers and rights-holders of these programs, which are currently licensed only for over-the-air broadcast (and simultaneous cable re-broadcast).

Finally, a national cable feed would offer reasonably broad reach, to the 57 percent of U.S. households that currently subscribe to cable. As noted on pages 52 - 53, however, that percentage is not equally spread across the socioeconomic spectrum; subscription rates are disproportionately low in low-income households.

However, it should be noted that cable services pass a far higher percentage of homes than currently subscribe; fully 85 percent of U.S. television households are passed by cable (that is, are technically able to subscribe). If all of these households could somehow receive the ready-to-learn programming via cable, the reach of a cable-based service would broaden to 85 percent.

Achieving such a goal, however, would almost certainly require a legislative or regulatory solution requiring cable operators to offer certain basic services to every home passed, or offering tax credits and incentives for the provision of such services, or creating "cable stamps" (analogous to food stamps).

Challenges

The principal challenges to a successful implementation of a national ready-to-learn service through a cable feed are related to the fact that an entirely separate industry, with its own economic needs and policy goals, is required to deliver it.

To reach anywhere near the current total of cable subscribers (57 percent of U.S. households) would require a major commitment from the entire cable industry, and current levels of carriage of similarly constituted basic cable services are not encouraging. While some basic services such as The Family Channel and Nickelodeon reach close to 56 million subscribers each (almost 100 percent of all subscribers), others reach far fewer.

The Black Entertainment Network, for example, reaches just 34 million subscribers. Worse, the service that is most similar to a prospective ready-to-learn service, The Learning Channel, reaches just 17 million subscribers. Inasmuch as all of these are basic cable services, the variations in their subscriber totals must be a reflection of the number of systems that choose to carry them.[53]

A further question is raised by the economics of cable operations. One of the fundamental economic realities of cable service is that operators receive far more income from premium services than from basic services, even though basic services reach a much higher number of viewers.

Thus, economics would favor "tiering" a national ready-to-learn service into a premium offering, particularly if the service offers appealing, high-quality programs considered desirable by viewers. Premium tiered services, however, reach smaller numbers of subscribers. The most popular premium service, Home Box Office, reaches 17 million subscribers; The Disney Channel, a very successful premium service with strong appeal to children and families, reaches just 6 million.

Finally, a proposed national ready-to-learn service from public broadcasting, while distinguishable in originality, quality and content, is potentially very similar to services that are contemplated, and in the case of Ready, Set, Learn on The Learning Channel, already beginning to be implemented. If a service similar to one that might be provided through public broadcasting is also available from an existing cable programming service, operators may well be more likely to offer the latter.

Costs

The direct costs involved in implementing a national ready-to-learn service using cable television are estimated to total between $38 million and $58 million, *exclusive of new programming and promotion* (see the following chapter for estimated total costs).

Of that amount, however, $8 million or less would be incurred by the public television system: an estimated $2.2 million by a national distributor for operating costs and some additional equipment required to develop, administer and deliver the ready-to-learn programming feed to cable systems, and the remainder incurred by public television stations who wish to install equipment to receive the cable feed themselves before supplying it to their local cable systems, rather than allowing the national distributor to deliver the feed directly to cable systems.

The remaining costs, $30 million to $50 million, would be incurred by cable systems for the acquisition and installation of equipment required to receive and then deliver the ready-to-learn service.

For a discussion of possible sources of revenues from a service configured this way, see page 78.

Summary

Using a national cable feed to deliver ready-to-learn services would not disrupt current operations at public television stations, and could be implemented at a moderate cost.

It offers at least the potential of a reasonably broad reach, although the reach is disproportionately lower in lower income households barring some sort of

legislative or regulatory action to convert homes that are now merely passed by cable into homes that can receive cable.

However, successful implementation would require a high degree of cooperation by cable operators, even though such a service may be competing with similar, industry-developed services.

In addition, a disproportionate share of the costs of implementing a national cable feed service fall on cable operators.

LOCAL HYBRID

This option is so named because the responsibility for selecting and implementing the final delivery of ready-to-learn services would be in the hands of individual public television stations, and the resulting service would be a hybrid of separate delivery systems across the nation.

Under this option, the Public Broadcasting Service or another national distributor would develop a national programming feed as in both previous approaches, and deliver it to stations via satellite as in the universal access scheme. However, rather than clearing the daytime schedule of other programming for an over-the-air ready-to-learn broadcast, each station would determine the best method to deliver the programming to users.

These methods could include a broad array of current and developing technologies, such as:

- Regular over-the-air broadcasts, at levels ranging from current levels of preschool programming to a full daytime schedule as in the universal access approach;
- Conversion of an existing independent commercial station in the area to a daytime ready-to-learn service, using programming supplied by the public television station;
- Delivery by local cable system (a locally implemented version of the previous approach);
- Microwave (ITFS) broadcast to fixed sites equipped with special receiving equipment;
- Direct Broadcast Satellite (DBS) to station-certified sites equipped with satellite receiving and decoding equipment;
- Low-power television, where available;
- Ultra-low-power television, where available;

Videocassettes and other forms of direct station outreach.

Under this approach, each public television station would face the fundamental choice of whether to commit strongly to deliver a ready-to-learn service as widely and continuously as possible, or simply to enhance its current preschool offerings.

The first option would require the station to obtain uninterrupted carriage of ready-to-learn programming for a significant block of time, using some combination of the technologies above, and would require fairly extensive capital expenditures. The second option would involve incremental increases in services and efforts already in place, but would not require major capital expenses.

Advantages

The great advantage of this approach is its compatibility with public television's traditional emphasis on the independence of each local station to develop services and broadcast schedules that meet the needs of the communities it serves.

This approach gives each station the opportunity to identify and deliver the services that are most suitable to its community, and that take best advantage of available technologies, e.g., those stations that already have ITFS or microwave technologies could use them.

Challenges

On the other hand, because so much of the responsibility for configuring the service devolves to stations, it may be disproportionately burdensome on smaller stations that lack the staff and resources to devote to its implementation.

In addition, because this scheme requires each station to embark individually on a process of exploring and implementing solutions that could be quite complex, its implementation will certainly be slower and more difficult than either of the previous approaches.

As such, while the reach of this scheme is very difficult to estimate, it will certainly be substantially lower than the universal access approach, and probably be considerably lower than a national cable feed.

In fact, the reach of a comprehensive service over the first three years has been loosely estimated to be between just 10 and 30 percent of the nation's households. If the effort were sustained over time, of course, that figure would gradually grow. (This estimate is for the reach of a comprehensive, uninterrupted service. A level of service comparable to current levels of

preschool programming would probably continue to reach virtually all households.)

Moreover, because this approach requires hundreds of local implementations, the economies of scale realized through the other options are lost. In fact, total costs for this approach are far greater than for the others.

Finally, a ready-to-learn service that involves a piecemeal implementation may sacrifice the sense of urgency and importance that is associated with a coordinated national response to a serious social problem. Even if the implementation is understood by public broadcasters to be a national effort, it may not be so perceived by those outside the system, who may simply see business as usual.

Thus, the greatest challenge to be overcome in this scheme is simply to maintain a strong commitment to a slow, complex, and decentralized process, to the point where it can become a truly national ready-to-learn service.

Costs

The direct costs involved in establishing a comprehensive national ready-to-learn service using local implementation are estimated to total between $50 million and $500 million, *exclusive of new programming and promotion* (see the following chapter for estimated total costs).

This vastly higher estimate (compared with the other options) is a result of high capital expenditures for stations to acquire alternate distribution technologies on their own, including connections to cable systems; microwave, low power, and ultra-low-power television transmission equipment; and costs associated with duplicating and distributing videocassettes (see accompanying chart).

Estimates of these costs are necessarily conjectural, but range between $50 million and $350 million, all of which would be incurred by individual public television licensees.

In addition, this option would require major expenditures by entities outside the public broadcasting system as well, including cable systems, for equipment to receive ready-to-learn programming from local stations; independent television stations that convert to ready-to-learn service, for reception equipment; and any sites (such as day care centers, community centers, colleges, universities, and so forth) that might want to receive microwave or DBS (satellite) transmissions, again for receiving equipment. These costs, again highly conjectural, are estimated to range up to $150 million, with an upper limit of more than $540 million.

Costs at the national level remain relatively modest: $2.2 million for operating costs and some additional equipment required to develop, administer, and deliver ready-to-learn programming to the stations.

For a discussion of possible sources of revenues from a service configured this way, see page 78.

Summary

This approach relies on mechanisms that are familiar to public broadcasters, and does not challenge the current operating environment of public television. For these reasons, it may at first appear to be the most practical configuration for a ready-to-learn service offered through public television.

In its reliance on local public television licensees to develop local solutions, it might also deliver a service that is more appropriate to each community it serves.

However, for these same reasons, it will be slow and complex to implement, and as a practical matter will probably reach far fewer households than a comprehensive service.

Moreover, the immense costs involved in implementing a comprehensive service on a local basis, falling almost exclusively on individual public television licensees and other local business and community institutions, constitute an extremely formidable barrier to the service's *ever* coming to full and comprehensive fruition.

USING THE EXISTING SCHEDULE

As a final alternative involving minimal disruption to existing public television services, minimal costs, and minimal barriers to implementation, public broadcasting could simply fit new programming into its existing preschool schedule where possible, while unifying and consolidating its outreach efforts.

As noted before, public television stations currently offer an average of six hours a day of programming for children; some stations offer as much as nine hours daily (e.g., WETA in Washington, DC and WGBH in Boston). Many public stations also participate in outreach efforts that help caregivers in preschools and day care centers make better use of these programs (e.g., *Mister Rogers' Neighborhood Child Care Project* and the *Sesame Street Preschool Education Project).*

In many areas of the country, therefore, the kernel of a ready-to-learn service already exists. If some new programming to fulfill the pedagogical needs of a comprehensive ready-to-learn service were developed and simply fit into the schedule, accompanied by renewed and expanded community awareness and promotional efforts to make parents and caregivers more aware of and involved with the service, many of the goals of a national ready-to-learn service could be at least partially satisfied.

Reach could be nearly universal, depending on the ability and interest of local stations to carry any additional programming. However, the increased level of programming offered by a dedicated national service -- or even the hybrid approach of local services -- is completely lost.

In addition, this approach sacrifices the sense of urgency and importance associated with a more coordinated and ambitious national effort.

Costs

Excluding costs of new programming, promotion, and outreach, costs for this option range from virtually nothing to as much as $10 million, but are likely to be lower than those for any other approach discussed.

The least level of effort would involve no expansion of ready-to-learn programming fed from the Public Broadcasting Service or another national distributor, and thus would involve no new capital expenses at all.

If PBS or another national distributor were to develop a separate feed of programming, costs would total about $4.5 million ($2.2 million to cover operating costs and some additional equipment required to develop, administer, and deliver the ready-to-learn programming feed to stations, and $2.4 million for stations to install receiving and decoding equipment to receive the satellite feed).

At higher levels of effort, some stations may incur costs in securing alternate delivery of some programming, thus making way for additional preschool programming, as discussed in the universal access option.

Summary

Improving current services is not really a separate approach, but rather a minimum-scale implementation of the local hybrid option.

It can deliver some semblance of a nationally available ready-to-learn service quickly, with little disruption to existing public television operations and relatively little additional funding.

Moreover, since this approach is based on use of existing over-the-air broadcasts, it could deliver virtually universal reach for some kinds of new programming.

However, because this approach does not contemplate any parallel action with a common body of programming on the part of public television stations, strictly speaking it does not constitute a dedicated ready-to-learn service.

OVERALL COSTS

This chapter consolidates the estimated costs associated with program production, promotion, and outreach with the costs associated with the choice of a delivery system to present the total range of estimated costs for establishing a ready-to-learn service to a variety of configurations. All of these costs are incremental costs to build around the already substantial service provided by public television to children.

A Note on Programming and Promotion Costs

The cost estimates for program production in this report are based on three different levels of a ready-to-learn service, defined in terms of the number of hours of original programming provided on a daily basis, and the number of times each program is repeated during the course of a year. These service levels are:

A high level of service, defined as offering up to 16 hours of daily programming on weekdays and a relatively low level of repeated programs (five times per year);

A medium level of service, defined as offering up to 12 hours of daily programming on weekdays and a relatively low level of repeats (five times per year);

A low level of service, defined as offering up to 8 hours of daily programming on weekdays and a low level of repeats (five times per year); or up to 16 hours of daily programming on weekdays and a *high* level of repeats (10 times per year).

Not every level of service is appropriate to every means of distributing the service (for example, the universal access option would provide a maximum of twelve hours of programming daily); cost summaries are provided only for those combinations of service delivery and service level that are realistic.

In addition, the cost estimates for promotion were based on a coordinated national effort developed to support a truly national ready-to-learn service. However, two of the distribution options, local hybrid and existing schedule,

do not involve a truly national service. Therefore, promotion costs for these options are calculated differently.

UNIVERSAL ACCESS

The costs involved in implementing a distribution system for a national ready-to-learn service in which public television stations throughout the country would dedicate their regular over-the-air broadcasts to a daily, uninterrupted block of ready-to-learn programming are estimated to total between $20 million and $45 million (see pages 55 - 61 for details). Most of these costs ($15 million to $40 million) would be on-going costs to offset permanent losses in revenues from broadcast of contracted instructional services.

Two levels of program production are appropriate for this delivery method; the high level of service, defined as offering approximately 16 hours of daily programming, exceeds the capacity of the universal access option, which supplies between ten and twelve hours of programming daily (e.g., 6:00 or 8:00 am through 6:00 pm).

The costs associated with the remaining two service levels are:

Medium service level: $171 million in initial costs; $21 million annually in ongoing costs.

Low service level: $57 million in initial costs; $7 million annually in ongoing costs.

Costs for promotion and outreach are estimated as follows:

Promotion: $10 million for initial launch; $5 million annually in ongoing promotion.

Outreach: $15 million for materials development and initial effort; $15 million annual in ongoing system-wide outreach.

Thus, total estimated costs for implementing the universal access option can be summarized as follows:

Total Implementation Costs/Medium Service Level:

$216 million to $241 million to implement the service fully;

$56 million to $81 million annually in ongoing costs.

Total Implementation Costs/Low Service Level:

$102 million to $132 million to implement the service fully;

$42 million to $67 million annually in ongoing costs.

NATIONAL CABLE FEED

The costs involved in implementing a distribution system for a national ready-to-learn service in which cable systems throughout the country would deliver a channel of ready-to-learn programming from public television are estimated to total between $38 million and $58 million (see pages 61 - 65) for details).

Two levels of program production are appropriate for this delivery method; the low level of service, defined as offering approximately 8 hours of daily programming, is insufficient to meet the needs of a national cable feed, which would offer programming 24 hours a day.

The costs associated with the remaining two service levels are:

High service level: $274 million in initial costs; $34 million annually in ongoing costs.

Medium service level: $171 million in initial costs; $21 million annually in ongoing costs.

Costs for promotion and outreach are estimated as follows:

Promotion: $10 million for initial launch; $5 million annually in ongoing promotion.

Outreach: $15 million for materials development and initial effort; $15 million annual in ongoing system-wide outreach.

Thus, total estimated costs for implementing the national cable feed option can be summarized as follows:

Total Implementation Costs/High Service Level:

$337 million to $357 million to implement the service fully ($30 million to $50 million of which would be incurred by cable system operators);

$54 million annually in ongoing costs.

Total Implementation Costs/Medium Service Level:

$234 million to $254 million to implement the service fully ($30 million to $50 million of which would be incurred by cable system operators);

$41 million annually in ongoing costs.

LOCAL HYBRID

The costs involved in implementing a distribution system for a national ready-to-learn service in which each public television station determines how best to distribute a ready-to-learn service are estimated to total between $50 million and $500 million (see pages 65 - 68 for details).

While the high level of program production is an unlikely choice for a service that lacks a delivery system that is genuinely national in scope, all levels of program production are possible. The costs associated with all three service levels are:

High service level: $274 million in initial costs; $34 million annually in ongoing costs.

Medium service level: $171 million in initial costs; $21 million annually in ongoing costs.

Low service level: $57 million in initial costs; $7 million annually in ongoing costs.

Costs for promotion and outreach are estimated as follows:

Promotion: Since there is no national launch to promote, promotional costs are estimated on a per-station basis, at $335,000 for each station. It is further estimated that about 66 public television stations will participate with a high level of commitment. Total promotional costs are therefore estimated at $22 million annually.

Outreach: $15 million for materials development and initial effort; $15 million annual in ongoing system-wide outreach.

Thus, total estimated costs for implementing the local hybrid option can be summarized as follows:

Total Implementation Costs/High Service Level:

$361 million to $811 million to implement the service fully (as much as $150 million of which could be incurred by entities outside public broadcasting);

$71 million annually in ongoing costs.

Total Implementation Costs/Medium Service Level:

$258 million to $708 million to implement the service fully (as much as $150 million of which could be incurred by entities outside public broadcasting);

$58 million annually in ongoing costs.

Total Implementation Costs/Low Service Level:

$144 million to $594 million to implement the service fully (as much as $150 million of which could be incurred by entities outside public broadcasting);

$44 million annually in ongoing costs.

EXISTING SERVICES

The costs involved in implementing a distribution system for a national ready-to-learn service in which new programming may be inserted into the current preschool programming schedule on public television stations are estimated to total between zero and $10 million (see pages 68 - 70 for details).

If any new production is pursued, only the low level of program production is appropriate for this delivery method; the high and medium levels of service, defined as offering approximately 16 and 12 hours of daily programming, respectively, exceeds the capacity of this option, where any new programming is shoehorned into the existing schedule.

The costs associated with the low service level are:

Low service level: $57 million in initial costs; $7 million annually in ongoing costs.

Costs for promotion and outreach will vary, depending on the extent of new promotion and outreach services. Costs of a more ambitious effort are estimated as follows:

Promotion: $10 million annually in ongoing promotion;

Outreach: $15 million for materials development and initial effort; $15 million annual in ongoing system-wide outreach.

Thus, total estimated costs for implementing the universal access option can be summarized as follows:

Total Implementation Costs/Low Service Level:

$83 million to implement the service fully;

$32 million annually in ongoing costs.

Total Implementation Costs/No New Production:

$25 to implement the service fully;

$25 million annually in ongoing costs.

REVENUE CONSIDERATIONS

There are three potential sources of revenue for a national ready-to-learn service offered through public broadcasting (excluding tax-based sources): incremental increases from current funding sources; fees from cable systems (for the national cable feed option only), and ancillary revenues. This chapter considers those revenue sources, and more particularly how they might be affected by the configuration and extent of the service.

These revenue estimates, it should be noted, are unavoidably speculative.

INCREMENTAL INCOME FROM CURRENT SOURCES

One possible source of revenues for a national ready-to-learn service is increased funding from sources that currently support public broadcasting. Excluding tax-based support, these sources include:

Corporations, including both operational support for stations and underwriting support for program production;

Members (individuals);

Foundations;

Universities;

Auction;

In-kind support;

Other support.

In examining the interests of these revenue sources with regard to a ready-to-learn service, it was concluded that corporations, members, and foundations might be motivated to increase support (or new sources within these categories might be motivated to begin providing support) based on two factors:

The important social value of such an effort (its philanthropic appeal);

An increase in the number of homes viewing the ready-to-learn service.

Revenue increases derived in response to a philanthropic appeal based on the social value of a new, national ready-to-learn service will be linked to the perception of how new and important that service is. Increases derived from the growth in audience will be linked simply to that growth.

Both of these factors, in turn, are controlled by the method the service is delivered; consequently, increases in incremental revenues are driven by the structural configuration of the service.[54]

For corporate revenues, it is estimated that:

The local hybrid option could produce an increase of up to 10 percent in on-air (operating) support, due to audience growth;

The national cable feed could produce an increase of 10 to 20 percent in on-air support, for a larger audience and its perceived social value;

The universal access option could produce growth of 10 to 20 percent in on-air support and up to 20 percent in underwriting support, based on both growth in audience and the perceived social value of public broadcasting having dedicated its daytime hours to a national ready-to-learn service.

For member revenues, it is estimated that:

The local hybrid option could produce an increase of up to 10%, due to audience growth;

The national cable feed could produce growth of between 5 and 10 percent, due to audience growth;

The universal access option could produce growth of 10 to 15 percent, based on both audience growth and perceived social value.

For foundation revenues, it is estimated that only the universal access option will produce growth in revenue, because of its perceived social value, and that the increase will be up to 20 percent.

As outlined, these incremental increases would have an overall impact on public broadcasting revenues approximately as follows:

Local hybrid: 0-3 percent increase, or up to approximately $30 million;

National cable feed: 1-3 percent increase, or approximately $10 to $30 million;

Universal access: 3-6 percent increase, or approximately $30 to $60 million.

FEE REVENUES

If the national cable feed option for delivering a ready-to-learn service is pursued, public broadcasting, as the program supplier, stands to receive licensing fees from cable operators. These fees are dependent on the number of subscribers who have access to the service. If the ready-to-learn service were tiered as a premium channel, fee revenues would be received from subscribers as well.

There exists a clear trade-off between how widely a channel is carried and the fees it can charge for carriage. If an objective is universal carriage on cable systems, it is very unlikely a licensing fee could be charged. If licensing fees were high, carriage and home subscription would be substantially reduced.

Currently, licensing revenues received by basic cable networks on a per-subscriber basis vary between seven cents ($0.07) per month for The Learning Channel, for 17 million subscribers; and forty cents ($0.40) per month for TNT (Turner Network Television), with over 56 million subscribers.

Estimates for fee revenues for a ready-to-learn service provided by public broadcasting use the low end of spectrum, since a service from public broadcasting would not provide cable operators with any advertising income. Thus, per-subscriber revenues are estimated at between seven cents ($0.07) per month and fifteen cents ($0.15) per month.

Given a broad range in the possible number of subscribers (15 million to 57 million), the estimated fee revenues from a basic cable service range from approximately $10 million to $100 million annually.

If the ready-to-learn service were offered as a premium, additional-cost channel (see discussion of tiering on pages 63 - 64), fee revenues on a per-subscriber basis would be dramatically higher. Currently, premium cable channels average almost $4.00 per subscriber per month. While the number of subscribers for premium services is generally lower than for basic services, the overall revenues are usually equal to or greater than those for basic services, because of the great difference in per-subscriber charges.

It has been estimated that a ready-to-learn service from public television, configured as a premium channel, could command between $1.25 and $2.50 per subscriber per month. However, since the potential subscriber base is limited to families with children who receive cable and who can afford the extra cost of premium cable service, the likely number of subscribers is considered to range between only 1 million and 3.3 million.

Using these assumptions, the possible fee revenues from a premium cable service range between $15 million and $100 million annually, although these estimates, particularly at the high end, are highly speculative.

The actual revenues derived by public broadcasting within this range would ultimately depend on the perceived value of the service to cable subscribers and, through them, to cable system operators. Assuming that the quality of the programming would be at least equal to the programs currently offered by public television, the primary determinant of value is then how "different" the programming offered by the service is from public broadcasting's current preschool programming -- that is, the service will be valued by subscribers if it is substantially different from the programming they already receive from their public TV station.

Thus, potential cable revenues will rise as the commitment to new programming -- and the cost associated with its production -- rises.

ANCILLARY REVENUES

The final source of potential revenues for a national ready-to-learn service is ancillary sources such as licensing fees for images or characters from programming and redistribution fees for releases of programming in different media.

Ancillary revenues can make a contribution to supporting the efforts of public broadcasters. However, ancillary sources as licensing fees actually generate far less income than is commonly supposed.

For example, it has been widely reported that toys based on the characters in *Sesame Street, Barney & Friends,* and *Shining Time Station* have generated significant retail sales. However, industry rule-of-thumb suggests that the portion of retail sales that finds its way to the license holder in the form of licensing fees varies between one and three percent of retail sales. Thus, even if retail sales were to total $100 million, the income to the rights holder would be, in the best instance, approximately $3 million, and quite possibly just $1 million.

Thus, the potential income from ancillary sources is not as great as sensational newspaper headlines might suggest. In addition, because the rights to licensing and redistribution fees are held by the producers of programs, these fees revert to public broadcasters only insofar as they actually produce programming. Neither the Corporation for Public Broadcasting nor the Public Broadcasting Service produce programming.

Finally, and more fundamentally, public broadcasters are extremely sensitive to the issue of commercialization, and view ancillary revenues as a mixed blessing. To the extent that such revenues can help support the creation and distribution of programming of value, as has traditionally been the case with

the operations of producers such as the Children's Television Workshop, they are considered positive; but to the extent that such revenues could conceivably threaten public broadcasting's reputation as a safe, noncommercial haven for America's youngest viewers, they are viewed with suspicion, if not outright hostility.

The Corporation for Public Broadcasting, therefore, does not consider ancillary income to be a potentially significant source of revenues.

CONCLUSION: NEXT STEPS

Public broadcasters have a long record of service to the children of America.

It is the hope of the Corporation for Public Broadcasting that this report will begin a dialogue that will lead to the implementation of a fuller and more valuable service to our nation's children; a service that public broadcasters -- along with many educators, civic, government, and business leaders, and ordinary citizens -- believe is critical to the nation's future.

That dialogue must begin within the public television system itself, particularly in light of the system's strong tradition of independent, local decision-making; but it will, and should, extend far beyond the system as well, to include all the parties who take an interest in our nation's children.

To provide more information for that dialogue, the Corporation will conduct a survey to determine more fully and accurately the needs that must be met, and the obstacles that must be overcome, before a national ready-to-learn service can be implemented effectively.

In the meantime, public broadcasters are ready and willing to assist Congress in further exploring the options presented in these pages; to work with the Departments of Education and Health and Human Services to build toward a consensus regarding the ready-to-learn needs of preschool children; and to participate fully in the national discussion that, it is hoped, will precede the development of a strong and effective ready-to-learn service for all of America's children.

APPENDIX 1: SPECIFIC READINESS SKILLS

Authorities in child development who participated in the preparation of this report suggested a number of specific skills, appropriate to different ages, that aid a child's readiness to learn. This list is by no means exhaustive, but does suggest the kinds of skills that are considered essential to further learning.

For Infants and Early Toddlers

1. Auditory stimulation:
   Acquire extensive exposure to adult verbalization, including reading and storytelling, and mock conversations with adults, especially when those are of an intimate, one-on-one nature;
   Practice vocalization, especially in response to adult encouragement;
   Engage in rhythmic activities, especially those that entail physical participation, as in the cases of adult-guided hand clapping, and being moved in time to music;
   Acquire experience in recognizing the sounds made by many different objects;
   Acquire familiarity with repeatedly used words.
2. Visual stimulation:
   Acquire progressively more skill in attending and inspecting, visual tracking, and visually locating objects that are named or pointed to;
   Acquire skill in matching objects on the basis of form, color, and the like, as in simple stacking and ordering;
   Choosing or pointing to a named object;
   Look at and interact with books.
3. Babbling, vocalization, and early verbalization:
   Have reinforced by adults existing skills in babbling and vocalization in response to encouragement;
   Acquire progressively more skill in vocal imitation;
   Use sounds or words to express needs and wants.
4. Physical activity:
   Acquire skill in rolling over, pushing up, grasping, manipulating, sitting up, moving by creeping, crawling, and cruising, and taking first steps;
   Acquire skill in stacking and building, and in making things happen, such as clapping hands and causing something to make a noise, fall over, pour out, open and close, and the like;
   Acquire skill in eye-hand coordination, in finger and hand dexterity, and in using objects as means for achieving ends.
5. Socializing with adults:
   Engage in various forms of play with adults;
   Be encouraged by adults the practice of skills in imitating adults.

For Toddlers

1. Perception and cognition:
   Acquire skills in sorting and matching objects;
   Learn to identify simple cause-and-effect relationships;

For Toddlers

1. Perception and cognition:
   Acquire skills in sorting and matching objects;
   Learn to identify simple cause-and-effect relationships;
   Acquire skill in reasoning from clues;
   Learn to create play objects from blocks and to assemble simple puzzles and toys;
   Learn to use tools and other objects as means to ends;
   Learn about routine and schedules.

2. Language:
   Acquire skill in naming body parts and functions, in applying relational terms, and in naming the different members of various categories such as foods, girls, boys, toys, and animals;
   Acquire a substantially expanded general vocabulary;
   Engage in word play;
   Acquire increasing skill in the proper and practical use of inflections and sentence structures;
   Identify favorite stories.

3. Sense of selfhood:
   Know one's own full name;
   Acquire a sense of self-worth and dignity;
   Acquire a sense of confidence in various areas of skills and pride in one's accomplishments;
   Acquire a sense of having special possessions such as clothes, bed, eating utensils, and toys;
   Acquire a sense of independence, such as a sense of ability to meet some of one's own needs;
   Acquire a sense of one's impact on other people;
   Acquire progressive control over impulses;
   Recognize various emotions in oneself and others;
   Learn to express oneself through words and materials, and by creating one's own world of imagination and dramatic play.

4. Physical:
   Acquire skills of jumping and running, throwing and catching, eating and drinking, and washing and dressing;
   Acquire eye-hand coordination;
   Acquire skills in grasping with hands and fingers;
   Experiment with textures and properties of different materials.

5. Social:
   Learn to engage in play with other children;
   Learn to seek and give help;
   Learn to distinguish between acceptable and unacceptable interpersonal behaviors;
   Learn to contain actions that might bring harm to others;
   Learn to use terms of politeness such as "please" and "thank you";
   Begin to understand when it is necessary to ask permission before acting;
   Learn to play at assuming different social identities and roles;
   Be exposed to models of verbal control of aggression and of empathy for others.

For Preschool Children

1. Label, match and reproduce both auditory and visual patterns and figures:
   Detect differences between similarly sounding words;
   Identify a non identical word in two otherwise identical sentences;
   March and clap in time to music;

Reproduce with hands or objects progressively more complex percussive sound patterns;
Infer the sources of given sounds;
Identify different objects on the basis of verbally provided descriptions of them;
Develop an acquaintance and appreciation of a variety of sounds and musical instruments;
Identify and name simple geometric figures;
Match progressively more refined visual shapes ranging from geometric forms to drawings of objects to letters of the alphabet;
Locate discreet visual figures when embedded in a larger visual context.

2. Sort, order, and classify:
Match, sort, and classify on the basis of form, structure, function, size, number, or other category basis;
Recognize when objects are the same versus different;
Compare objects on the basis of successively more refined details;
Match form with function;
Match picture with actual physical object;
Match picture of object with written word for that object;
Order objects on the basis of size, amount, number, relative position, speed, hardness, and the like;
Label verbally categories of objects;
Solve oddity problems.

3. Reason and solve problems:
Understand sequencing;
Be able to anticipate consequences;
Articulate reasons for things;
Be active in observing and exploring the world;
Begin to express analogies;
Understand that it is OK and good to verbalize reasoning and explanations;
Improvise in imaginative ways.

4. Identify and understand selected aspects of the world of human making:
Be aware of the human role in inventing and fabricating objects, ranging from tools to means of transportation and including bridges, buildings, articles of clothing, toys and games, musical compositions, works of art, etc.;
Know that there are builders, composers, authors and illustrators, miners, farmers, inventors, and such;
Know some of the materials or ingredients that go into some familiar types of physical structures;
Know some of the sources of raw materials, and some of the ways in which they are acquired and transformed by human beings;
Be aware that great care has been taken often times when harvesting or transforming resources to avoid damage to the earth or harm to animals and people;
Acquire a nascent sense that there is a history of human invention.

5. Have knowledge of selected objects, physical features, and processes of the natural world:
Be aware that symbols on paper (i.e. maps) and on signs can have meaning;
Know the names of the four basic directions;
Know several types of fish, birds, reptiles, mammals, and their habitats;
Know what many different creatures eat, how they change as they grow, and how their physical structures and sense suit them to their respective homes, habitats and circumstances;
Know that many plants grow from seeds;
Know what kinds of plants different fruits and vegetables come from;
Know that food, rest and exercise are needed for healthy growth;
Learn to look closely at shapes and processes in nature;

Acquire a varied vocabulary to describe objects and processes in nature;
Learn that natural resources will be used up if not preserved and cared for.

6. Acquire reading-related skills and understandings:
Acquire a rich grasp of narrative structures and relationships;
Associate books and stories with reading;
Develop an image of themselves as a future reader;
Grasp the meaning and use of letters and words;
Acquire skill in reading written letters;
Develop skill in phonic decoding;
Acquire a sight reading vocabulary;
Acquire a substantial vocabulary;
Acquire a selective metalinguistic vocabulary;
Develop skills in recall of story details;
Develop skills in story interpretation;
Anticipate learning to read in school;
Develop skill in forming written letters and words with writing instruments;
Develop skill in describing events from personal experience;
Develop skill in imagining characters, places, and events as described in stories;
Develop skill in drawing scenes to match stories heard;
Become aware of languages other than those spoken at home.

7. Acquire number-related skills and understandings:
Acquire skill in counting object sets;
Acquire skill in naming the ten written numerals;
Acquire skill in comparing the numbers of items in different sets of items;
Acquire skill in simple addition and subtraction;
Acquire skill in identifying the number of objects in differently configured displays that contain anywhere from three to six items;
Learn to count backwards from ten;
Learn to keep track of already counted objects, especially when counting irregularly displayed objects.

8. Acquire skills, attitudes, and understandings in relation to the self:
Know the names and functions of the body parts;
Understand human capabilities, such as the several basic senses, memory, imagination and speech;
Be aware of and chart one's own growth, both physically and in various skill areas;
Learn to label, express, and cope with a variety of emotions;
Assume a variety of roles through play;
Be aware that one will grow up and have a career;
Identify and be proud of one's accomplishments;
Recognize one's own emerging likes and dislikes;
Be willing to try new foods, and to enter into and try new activities;
Learn to persist in the face of minor setbacks;
Learn to recognize and express one's needs and wants;
Learn the joys of self-expression in such varied forms as conversing, drawing, engaging in imaginative play, and performing for others;
Acquire eye-hand coordination, including but not limited to the ability to kick and bat, throw and catch, operate scissors, color and copy objects;
Acquire the strength and coordination in the exercise of gross motor skills;
Acquire fine motor skills, especially those related to learning to write and draw;
Learn to care for one's belongings;
Acquire skills of personal grooming and health maintenance;
Acquire perspectives and coping skills for dealing with one's fears;
Acquire perspectives and coping skills for dealing with one's physical disabilities, where such exist.

9. Acquire social skills and understandings:
   Acquire skills in entering social groups;
   Come to see and understand the perspectives of others, and how and why these often differ from one's own;
   Learn to act in ways that respect the feelings, safety, rights, and property of others;
   Learn the value of sharing and of pooling resources;
   Learn to identify and label selected adult occupational roles, and to know their functions;
   Learn kinship terms;
   Learn skills of effective interpersonal communication, such as how, politely, to ask, suggest or explain;
   Learn socially mature ways of expressing anger and frustration;
   Learn skills of negotiation, including an appreciation for how and when it may be necessary to compromise;
   Acquire skills of justice and fair play;
   Learn when and how to seek and act according to permission;
   Learn to feel empathy and sympathy for others;
   Learn about and respect human differences, particularly those relating to gender, race, and culture; likes and dislikes; and disabilities;
   Learn to understand and follow the directions given by elders.

10. Acquire attitudes and habits favorable to learning:
    Experience the joys and satisfactions of learning;
    Acquire an appreciation for the richness of books, and for the gratification of reading;
    Learn to ask to be read to and told stories;
    Learn to respect the need for classroom routines such as forming lines, raising hands, maintaining order, and following directions;
    Learn to accept and carry out assigned responsibilities;
    Learn that schooling is the key to the world of careers and to preferred occupations;
    Acquire a propensity for inquiring into how things work;
    Acquire a habit of writing letters and notes to many different people;
    Create and perform plays for family and friends using homemade costumes or puppets;
    Learn to follow sequences of simple directions.

APPENDIX 2: ADVISORS

ACADEMIC ADVISORS

Academic research and consultation on the project was led by the research team at The Yale University Family Television Research and Consultation Center, co-directed by Jerome L. Singer, Ph.D. and Dorothy G. Singer, Ed.D., with Karyl Kreizinger Evans, Corinne Levin, Todd Tarpley, and Suzanne Frances Worrall, and with Senior Consultant, Edward Zigler, Professor of Psychology and Director, The Bush Center in Child Development and Social Policy.

Additional advice and guidance was provided by:

Dr. Edward Palmer, World Media Partners; Dr. Keith Mielke, Children's Television Workshop; Dr. Milton Chen, KQED; Dr. Aletha Huston, University of Kansas; Dr. Ellen Wartella, University of California, Santa Barbara; and Dr. Susan Neuman, Temple University.

WORKING GROUP

Representatives from the following organizations provided valuable expertise and advice to the research effort through participation in the project's Working Group:

Corporation for Public Broadcasting
Public Broadcasting Service
America's Public Television Stations
Children's Television Workshop
Family Communications, Inc.
South Carolina Educational Television
KQED/San Francisco

FOOTNOTES

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7 Ibid, "Summary of Recommendations," pp 159-166.

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9 Idem.

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44 Source: U.S. Department of Health and Human Services (1988).

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52 Cost estimate developed by the Boston Consulting Group in consultation with the Public Broadcasting Service.

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